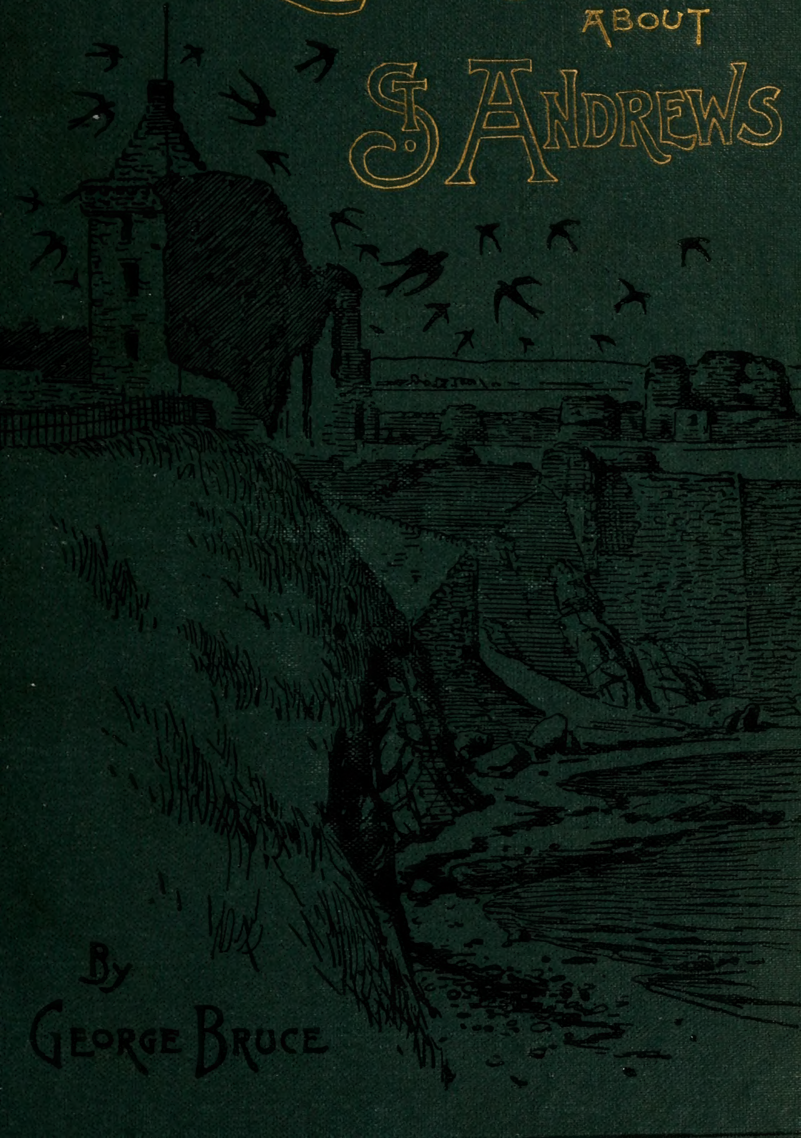
THE LAND BIRDS ABOUT ST ANDREWS



By

GEORGE BRUCE

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THE LAND BIRDS

IN AND AROUND

ST ANDREWS,

INCLUDING A CONDENSED HISTORY OF THE BRITISH LAND BIRDS,

WITH EXTRACTS FROM THE POETS

AND

Observations and Anecdotes on Natural History.

BY

GEORGE BRUCE,

ST ANDREWS,

Author of "Destiny, and other Poems," "Reminiscences of
St Andrews Bay," "Poems and Songs," &c.

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> "Birds and beasts,
> And the mute fish that glances in the stream,
> And harmless reptiles coiling in the sun,
> And gorgeous insects hovering in the air—
> The fowl domestic, and the household dog,
> In his capacious mind he loved them all;
> Their rights acknowledging, he felt for all."—*Wordsworth.*

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PREFACE.

The origin of this little work dates as far back as January 1855, when attending Dr Day's lectures (by invitation) in the United College, for in one of my notes written at that time the following reason is given :—

"Having bought some books on Natural History, and finding the store from which the lectures are taken, it is waste of time to write them from memory. I will go on collecting shells, crabs, eggs, birds, and birds' skins, and refer to these books to tell me their names and habits—my object being to collect most of the shells, birds' eggs, and birds found in Britain. Without a *beginning* there cannot be an end, so I now begin to follow up this pursuit, and, with good health, expect to find both success and happiness, which the mere pleasure-hunter, idler, or gossiper can never realise."

Another early note of March 1856 says : "These notes are simply a conglomeration of observations and facts which have come under my notice—hastily and without order set down at different times—but, although they may appear redundant, still something useful can be taken out of them, as their intention is merely to provide a kind of store for future use—not meant to be read otherwise than as a sort of granary of facts, to be culled at leisure"—hence this book.

There is enough material for a second volume, on "The Water Birds"—which may yet appear in print.

Dean Stanley, when preaching in Westminster Abbey, on "Honest doubt and inquiry," said : "The invectives of Jesus were never directed against honest inquiry—or even honest doubt, but against double-mindedness, against selfishness, and against religious hypocrisy—these were the sins He most abhorred." He also said, "If any of those present had devoted themselves to science, if any of them were students, in *any sense, of science, students of nature*, students of language, students of history, students of theology—if to any of them *truth* seemed to be the leading pole-star of their life—be they there or be they away from church or abbey, they were—consciously or unconsciously—willingly or unwillingly, labouring in the service of Christ and truth."

"Let us, then, be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labour and to wait."—*Longfellow.*

G. B.

St Andrews, 1895.

ERRATA.

At pages 13 and 17	for Temnick, read Temminck.
At page 386	,, winter, read summer.
,, 426	,, who, read which.
,, 513	,, two before, read two toes before.
At pages 254 and 255	,, 1891, 1889, read 1881, 1879.

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INTRODUCTION.

"IN God" (or by Nature's law) "we live and move, and have our being." And Coleridge truly says—

> "He prayeth well who loveth well
> Both man and bird and beast;
> He prayeth best who loveth best
> All things both great and small.
> For the dear God who loveth us,
> He made and loveth all."

And Robert Burns as truly says—

> "The heart, benevolent and kind,
> The most resembles God."

But it all depends upon each one's conception of what God is. For instance, the great German scientist, Humboldt, who spent a large fortune and a long life in scientific pursuits, broadly declared that our world was governed by universal *law*—not by a God; but, touching upon the inconceivable greatness of infinity, or the unsearchable origin of Nature, we may all say with the wise Athenian, Socrates, "All we know is—nothing can be known." Therefore, on such questions, like Pope, I am

> "Averse alike to flatter or offend,
> Not free from faults, nor yet too vain to mend."

Agreeing with Burns that—

> "The Great Creator to revere
> Must sure become the creature;
> But still the preaching cant forbear,
> And e'en the rigid feature."

The object of this little work is Truth, having passed through the sieve of the writer's own observations, or from carefully-weighed data—the best finger-posts on the road which leads to the study of Natural History.

But, first, I will give a sketch of the system upon which scientific works are based, with an outline of genera, families, and orders, nomenclature, moulting, migration, &c.; also a description of some birds *not* found around St Andrews, seldom even in Britain; but as they are included in the list of "British Birds" in most of our works on ornithology (at the risk of being a little inconsistent), I have introduced here—along with a smattering of information regarding the assumed systems, circles, families, and affinities of the various species, as an introduction to the lighter and more original design of the book—bearing always in mind that *species only* exist in the eternal order of Nature; and, as my object is to give information, and a desire to tell what I know from personal observation, it may be useful (in its unassuming way) to those who wish to study ornithology—not only as a science, but as a pleasant occupation when walking by the lonely shore, the wimpling burn and broomy knowe, or the many lovely bye-paths around us, face to face with Nature herself, reading the open pages of her ever-perfect book, or listening to the varied but general harmony from this interesting portion of her creatures; for there is a ring of cheerfulness in the ever-welcome springtide whistle of the blackbird, and in the songs of the mavis, the linnet, and the lark; in the merry "chink, chink, chink"—not of gold, but of the lively, lovely chaffinch; in the exhilarating "chicka, chicka-chee" of the active, little cole-tit; and in the plaintive "chilly, lilie, lillie-poo" of the yellowhammer; and more or less in all our feathered friends, not to be found in any other branch of Natural History.

And if we want types of courage or ferocity, affection or solitude, where better exemplified than by the falcon or the hawk, or the golden eagle, the cooing dove, or in the eerie hooting of the solitary owl?

Every phase of characteristic is more varied and attractive in the birds than in any other portion of creation (except man), for, although there are many different kinds of birds—from the little cave-seeking jenny-wren of the brambles to the soaring condor of the Andes—there are still more different kinds of men. There are human hawks and doves, eagles and geese, swallows and snipes, parrots and owls, jackdaws and peacocks, creepers and gulls, gulliemots and grouse, sparrows and larks, cormorants and humming-birds, fly-catchers and divers, and every species of worth and worthlessness the dictionary can express—all classed in the one rank and file of man, who is, like the Yankee, the lord of creation; at least, such is the feeling of the writer after fifty years' observation and notes.

I also find, after careful research, that our poets, especially Burns and Shakespeare, drew more illustrations from birds than any other class.

No doubt an amorous tom-cat, perched upon some old dyke or outhouse roof, in a courting mood, emitting his dismally energetic midnight serenade of caterwauling; or lonely, masterless dog, sitting howling on a rock by the sea-shore, with his nose pointed at the moon (like melancholy Jacques), do make some pitiful attempts at whistling or singing—at least howling—like an ill-bred cur in a drawing-room adding his unwelcome chorus to the high notes of the piano—but all miserable failures at the best.

The frog is even worse, when sitting by the side of a swamp, with his head in the air, like a parson, enjoying his evening croak.

The merry whistle of the guinea-pig, and the sweet notes of the little field-mouse, come much nearer the shape of a song than any other quadrupeds I know—especially the latter, which often lilts its low, sweet echo of music for half-an-hour at a time.

And, as for musical insects—with the exception of the solitary squeak of the forbidding death's-head moth I know of none—for the hum of the bee and the drone of the shard-borne beetle are caused by the rapid motion of the wings—not by the voice.

You hear the little house-fly buzzing past, and Sir John Lubbock tells us that those busy little wings make 21,120 vibrations in a minute. A clever naturalist, named Marey, contrived an ingenious mechanism by which each vibration of the wing made a distinct mark, and ascertained that there were generally about 330 strokes in a second. I am sure you will look upon the little fly with more interest and respect when you know what efforts it costs to make a buzz—the music of the fly. This instrumental method of producing sounds explains some things that filled our grandmothers with dread. A ghostly sound that used to alarm the watchers around the sick-bed—a sure sign that death was near—is, it seems, produced by the male and female death-watch tapping their heads when courting—more a sign of marriage than death. So this is another tiny insect, quarter of an inch long, that fain would be a musician.

Fishes are no better, for, with the exception of the doleful crooning of the dying crooner, or groaner, as the gurnard is called, and the most unmusical blowing of the porpoise or whale, I cannot tax my memory to mention a musical fish—unless it be the horribly suggestive sound from the snapping of the jaws of the shark, and the slapping of the tail of the cod, or the lively "dirl" in the boat of the new-caught flounder or skate. But all miserable—most miserable apologies for music, compared with the notes of our cheerful choristers of the grove or sky.

Nor is the rattle of the snake or the hiss of the serpent one whit better for adding to the musical harmony of the world—the braying of the ass or grunting of the swine being still less so, although the shriek of the poor pig just before death is a desperate attempt at the higher notes; but still a failure—a discordant failure after all.

The gentle whinny of the affectionate mare or shrill neigh of the hardy Shetland stallion come nearer to what might be forced into the ranks of music—and I may add the gentle bleating of the lamb and the low soothing purr of the kitten ; but scared music flies away when we think of the dreadful roar of the lion or the dismal howl of the wolf—not to speak of the fiend-like laugh of the hyena. None of them—no, not even the guttural grunt of the intelligent elephant, can reconcile my mind into the belief that any one of them can approach the very outskirts of the sweet notes of the blackbird, the mavis, the lintie, or the lark.

But as it is not so much the musical qualities of our feathered friends as their general habits I wish to write about, I had better begin to tell what I know about them, and in the order generally followed by our standard ornithologists. Those who wish to study "tracheas, entrails, and vents," had better consult Dr Macgillivray's very useful but rather prolix work on the "British Birds," which extends to five large and important volumes—a work, however, whose chief feature struck me as being to suck the good out of previous authors, adding what he knew personally, with the new feature of a minute description and measurements of tracheas, gizzards, and entrails of the birds—a perfectly legitimate and useful mode of authorship if less egotistically done, as we must all learn from others as well as from the open book of Nature—even in poetry and song, witness the many fine lyrics so wisely and so well collected and improved by our national bard, Robert Burns; but he did not borrow from and improve upon the work of his predecessors, then cavil at them for what they had done.

After devoting fourteen pages of foolscap describing the pharynx, gullet, glottis, trachea, olfactory nerves, &c., the learned Doctor winds up by saying—"Observations like these may appear unnecessary to the persons who view birds merely as composed of skin and feathers, but to them I now cease from addressing myself; they will gradually disappear from the earth, and their place will be occupied by men who will study birds as organic beings." Like himself, of course; but what sane person disputes that a bird is an organic being? The golden eagle, for instance, has been called by him "a magnificent, noble-looking bird," but strip him of his skin and feathers and he would be a poor, sad-looking figure indeed!—notwithstanding the length of his intestinal canal or thickness of gizzard. But who would ever dream of estimating the character of "a magnificent noble-looking organic being" (including man) by the length of his duodenum or size of his rectum?

And what I think is still more objectionable—the labours of old and standard naturalists are ungenerously shoved aside after having laid the basis, as it were, of ornithology; and after our very careful and minute, not to say immaculate author, had used and was done with them. For instance, he says—"I do not profess to add a new system to the many already in partial use, or that have passed away like their authors. Those of Linnæus, Latham, Blumenbach, Illiger, Viellot, Temnick, and Cuvier may *all be said to be extinct*, for *none of these worthies* can muster half-a-dozen followers at the present day." Now this is very disrespectful to the memory of such eminent naturalists as Linnæus, Cuvier, and the rest, to say the least of it, unless their names are only introduced to show the erudition of our learned historian.

Not content with this, he casts another stone at them by saying—"Indeed, their systems were never generally adopted even in a single country in Europe. Methods spring up and die like mushrooms, and for the same reason:—They are composed of *flimsy and unsubstantial materials*, easily elaborated, and have no solid frame to give them stability; they fall suddenly into decay, withered by the breath of criticism, which but serves to invigorate that which is possessed of real stamina." Meaning, of course, his own. Now, I cannot help entering my protest against this, both on behalf of the labours of our old authors, and also against such expressions that anything connected with Nature or Natural History is composed of "flimsy or unsubstantial materials"—no, not even the mere *classification of species*.

These old naturalists were as anxious—though, perhaps, not so able as Dr Macgillivray, in their study of Nature—and as earnest in their desire to give the world the benefit of their labours and researches as he was, and it is not justifiable for any writer, however gigantic in mental capacity, thus to treat the labours of his predecessors rowing in the same boat.

He is always raving about "previous authors," "Cockney sportsmen," "parlour naturalists," "museums," and "dried skins" of birds. But I am much mistaken if these have not constituted the chief materials from which his own voluminous leaves have been culled. One instance more and I have done sympathizing with the "effete and extinct works" of such fine old authors as Linnæus and Cuvier, as well as the "carpet naturalists" of modern times, who had the audacity to publish their works contrary to the more correct system of Dr Macgillivray. Some poor fellow had the temerity to draw a distant comparison between the snout of a nasua and the bill of the avocetta; the proboscis of an elephant and the bill of a snipe; the horn of a Highland bullock and a game-cock's spur, when our learned friend was down upon him like a cartload of bricks.

He grandiloquently asks—"Is it not cruel, after all, to shoot birds for mere sport?" Then answers his own query—"Perhaps it is so. Some kill birds for food; and, I suppose, they do right. Others slaughter them to make money; and, possibly, they, too, are blameless. Some shoot for study, and some to supply the naturalists and the museum with specimens. Consider what would become of us if we had no skins. All the *Binary*, *Ternary*, and *Quinary* arrangements; the rank and file extensions; the *Circular*, *Inosculant*, *Anatomising*, *Normal*, and *Aberrant* delineations would never have existed had there been *no skins to arrange on the carpet.* Without skins for comparison how could the marvellous discovery have been made that the 'snout of a nasua and the avocetta were as like as possible, considering that one is a quadruped and the other a bird?' The proboscis of an elephant you could hardly conceive to be the counterpart of a snipe's bill, nor the horn of a Highland bullock that of a game-cock's spur; nor can I comprehend how a heavy, short-winged black grouse should 'represent, in its own circle,' the light aërial long-pinioned swallow, merely because both have a forked tail. But a real *systematist* thinks no more of swallowing a palpable absurdity than a boa constrictor does of engulphing a curly-headed nigger—poor fellow!" No doubt the worthy Doctor thought this a marvellous stroke of satire against the well-meaning, but igorant, "systematiser," who studied "all his Natural History from dried skins on a carpet," and "swallowed absurdities as easily as boa constrictors swallow curly-headed niggers"—a feat, by the way, not so very easily done. He winds up his satire by saying—"As to the persons who shoot birds for mere sport, all I can say of them is, that they are mere sportsmen" (of course). "I have known very good men among them, and bad ones too." (No doubt of it.) But what information is there in this to those who wish to know the habits and the history of birds?

I do not pretend to squeeze the subject to death—like a mole in the clutch of a golden eagle; but, as simplicity is my aim, I shall deal chiefly with each *individual* species, for, we may say, such only truly exists in the order of Nature, and content myself with classifying in the fewest possible divisions, and in the plainest possible language, adhering very much to the system laid down by Linnæus (one of our earliest and best naturalists).

The groups he indicated and named have, in a great measure, been retained amid all the progress of science. Among the most important services he rendered was the introduction of a clear and precise nomenclature; so I feel justified in adhering to his system of classification in its broad, cardinal features, following the arrangement of that eminent ornithologist, Mr Vigors, and adopted by Mr Selby in his "Illustrations of the British Birds." But, after all, Natural History, like what is called Theology, is so varied and so vast a theme, that all should be at liberty to study and arrange the subject for themselves; and, if I follow any previous system, it is merely to save the time and trouble of classification.

I make no apology for taking hold of the borrowed lamp of others to guide me on my way in perfecting my little History of this interesting portion of creation—carefully adding my own spark of personal observation; and if at times I vary the more prosaic and systematic style of classification with a spice of poetry and anecdote, it will simply be to relieve the monotony of bald description. But all such variations shall be in accordance with the character of the subject in hand.

Neither have I scrupled to pin down facts wherever I found them, or lay hold of pithy description and traits of character when they ran parallel with my own knowledge—on the same principle that I would collect good specimens of birds or eggs from the open museum of Nature, in the fields and woods or by the sea-shore, the better to illustrate my subject and make it more attractive to my readers—for such descriptions may have been borrowed from others, at least must have been lent by the bounteous hand of Nature.

For clearness and simplicity I have divided the birds into the two broadly defined divisions—Land Birds and Water Birds; these again into five well-defined classes or orders, which, as they correspond in number to the fingers and thumb of the hand, will be the readier borne in mind. These are the *Raptores*, or tearers; the *Insessores*, or perchers; the *Rasores*, or scrapers; the *Gralatores*, or waders; and the *Natatores*, or swimmers and divers. I shall use British or local names in preference to Latin ones, as a living language is easier understood than a dead one; and, purposely, treat the subject so as not only to teach, but to invite my readers to follow me in our interesting study. Therefore it would be out of place to give minute details of their various organs, so perfectly adapted by Nature to their different habits of life, especially when there are so many more strictly scientific works on the subject. For instance, the bill is a great teacher, and tells to what class of bird it belongs. The Raptores, such as the eagles, falcons, hawks or harriers, have a notched tooth and scissor-like edges to cut their fleshy prey. Those which feed on worms and grubs, such as thrushes and larks, have soft bills, merely to pull out and swallow. Those which live on insects, such as the swallows, fly-catchers, wagtails, &c., have theirs small and pointed. The huskers or sheilers, which live on seeds and grain, such as the buntings, sparrows, finches, and linnets, have theirs strong for sheiling; those of the creepers and woodpeckers are long, for pecking insects out of the bark of trees. Ducks and geese have theirs broad and serrated for sifting water. Herons and oyster-catchers have theirs also long for seizing their finny or shelly prey. But all birds may be classed by the structure of the bill alone.

Mr Selby seems to have taken the same view, for he says—"With respect to organic structure, both external and internal, and the necessary adaptation of its several parts to peculiar habits of life, I would recommend an attentive perusal of the works of Cuvier, especially his 'Regni Anaimal;' those of Buffon; and the 'Philosophy of Zoology' of Dr Fleming, as well as the writings of Messrs Vigors and Swainson, in all of which these general heads of the science are most ably discussed. Derham's 'Physics Theology' and the 'Natural Theology' of Dr Paley follow the others in such natural progression, by leading the mind to a deeper interest in this pleasing branch of science, that they ought not to be omitted. These works are first mentioned, as applying to the subject in its most enlarged scale; but with regard to the minor and more superficial points, there are many works upon general ornithology, as well as upon that of our own islands, which I would particularly recommend —such as Dr Latham's 'General Synopsis' and 'Index Ornithologian;' the 'Ornithological Dictionary' and 'Supplement' of Montague, the 'Manuel d' Ornithologie' of M. Temnick, the ornithological works of Brisson, Le Vaillant, Vieillot, Sesson, &c. Of the German writers, Meyer, Bechstein, and Illiger will be found of eminent use. And for an instructive individual history of each species, the 'Ornithology' of Willoughby; White's 'Natural History of Selborne;' the works of Pennant, and the 'British Birds of Bewick,' will repay perusal."

In giving such an extensive list of authors, I do so for the purpose of giving my readers a key by which they may open the door that leads into the study of this pleasant branch of Natural History.

MOULTING.

In the course of description, the terms "vernal" and "autumnal" moult may occur, which it may be necessary to explain. The autumnal moult is the annual change of plumage to which all birds are liable, and which usually takes place in autumn after propagation. I may remark, however, that the swallows and a few others do not moult till January or February.

The vernal, or spring moult, is the partial change that some species undergo, especially the males, at the pairing or courting season—which livery of love, so to speak, remains during the propagation period only.

In some birds, the golden plover for instance, the colour of plumage is very much changed—the throat and breast become black in summer, instead of the mottled golden hue of the rest of the year.

Such birds as the male chaffinch and rose linnet increase in brilliancy of plumage when the ever-returning period of courtship and love takes place, when the throats of our sylvan songsters ring forth their cheerful notes at this busy and interesting time of the year—when the bracken and the broom, the hedges and the trees, begin to assume their lovely livery of green—for Nature herself pays universal homage to the all-pervading power of love in the continuation of species. Nor are the raven or golden locks of the country maiden less cared for as she trips over the lea, or the steps of her sweetheart less elastic as they hasten to meet each other at their appointed trysting-place down the glen or thorny dell. Nor is the innate blush on the cheek of modesty less deep when their lips instinctive meet in the mutual kiss of true and pure first natural love, although not always so faithful and true as the courtship and marriage of the birds, who choose their own partners, and neither seek divorce nor break their marriage contract.

Some authors say that the change of plumage is due to the action of the air and sun wearing the edges of the feathers; but, like Mr Selby, I think the increased brilliancy is more owing to an inherent principle in the bird and the feathers themselves—like the blush on the cheek of modesty—enhanced by the time of the year and the increased vitality of our feathered friends. For the same vital principle which deepens the hue of the cheek can deepen the hue of the feather.

That there is an invisible fluid pervading the feather appears in the striking difference in elasticity and brilliancy of colour between the feather of a bird when alive and a short time after death. In water-birds especially this principle of life in the feather is strikingly apparent, as the plumage which is impervious to water upon the living bird is almost immediately after death subject to its effect. Then, why should not the feather be influenced by the constitutional state of the bird? And as that is in the highest degree of vigour immediately before the season of propagation, why may it not be shown even to the extreme points of the circulating medium by a partial variation of colour?—like the blush on the cheek, or increased lustre of the feather?

Changes in the colour of the hair are not less a matter of fact. It has been recorded that one night of grief or fear has turned the raven locks of man or woman grey, like the young grey-haired girl, whose locks changed in a night while holding her little sister up over the rustic bridge over which she had fallen. And it is well known that the summer and winter coats of many quadrupeds are different. For instance, the stoat-weasel and upland-hare assume a winter's garb without any shedding of their coat. Therefore it is quite possible that the *edges* of the feathers may be shed (but not by a *gradual* process), and present a brighter surface of the same colour, or of a different shade altogether. In those birds where this change takes place, it may be observed that when the feathers (as on the head of the chaffinch, reed bunting, and stone chat) are of two distinct hues, the webs of the exterior one are joined to the main body of the feather by a line of separation of finer texture, thus forming an additional margin to the inner part.

I have thought it right to notice the alteration of colour at different times of the year, because, like the alteration of many birds in their progress to maturity (which sometimes takes several years, and each year different), an erroneous multiplication of species is the inevitable result, unless great care is taken to reduce such variations into their proper species. The study of this has been lately one of the chief advances in the science of ornithology, and one well worthy the careful study of every student of it.

Migration and Flight.

The *Law of Migration* to the general reader may require some explanation.

The terms *Summer* and *Winter visitant*, *Polar* and *Equatorial migrant*, may occur in these pages. Therefore, to illustrate my meaning, the Summer visitant or Polar migrant means a bird resident during the summer in Britain—as being the most northern parallel of latitude to which its migration extends, from the Equator towards the Pole—such as the willow and yellow woodwrens, the cuckoo, nightjar, swallows, &c.

To the Winter visitant or Equatorial migrant, Britain is the southernmost parallel to which their winter migration reaches, from the Pole to the Equator, their summer being passed in colder regions. Included in these visitants are some of the ducks, the woodcock, the fieldfare and redwing, the snow bunting, &c.

The *Occasional visitant* is a bird found here only at uncertain intervals—the waxwing and crossbill are instances. It also applies to stragglers that have been driven out of their regular course of migration by tempests or other casualties.

Migration is an instinctive law of Nature, particularly shown by the feathered race from their superior ability of locomotion, which has long engaged the study of naturalists. A great latitudinal movement, from the Equator towards the Poles, takes place on the approach of spring, when Nature calls for the perpetuation of the species. Another movement—the reverse of this from the Poles to the Equator—is in force during the autumnal and hyemal months. Upon this unerring fact a few words explanatory of the *cause* can with safety be said. The influence of uncongenial climate for food and propagation is the motive principle of migration, and, to a great extent, rules the breeding season of even our indigenous birds. For instance, the robin or blue tit, which have sought the precincts of man during winter, betake themselves to the mossy burn sides or sheltered plantations on the approach of spring; and it is wisely arranged by Nature that the young are brought forward generally at the time of the year when their particular kind of food is most plentiful. Therefore, the progress of vegetation, and the consequent display of the insect tribe, essentially operate upon those species that look to these sources for their supply of food; accordingly, we find the arrival of those birds hastened or retarded by an early or late spring. During the time that insects are in the chrysalis state in *one* latitude they may be in the mature state in another, and an equalisation of destruction (or living on life) is ordained for the wisest purpose; and, at the same time, the birds may be equally useful and necessary to the inhabitants of the different countries they visit in the wise and perfect economy of Nature.

The more we study Mother Nature, the more we are convinced that the two laws—search of food and propagation of species, each after its kind, rule all created beings—which, in man (with the addition of his mental instinct, called *religion;* and in woman, *dress*)—assume the names of Gold and Love, or love of gold and pride of position in society. All the rest of our desires are like the incipient toes of the elephant, or hidden thigh-bone of the whale, compared to the perfect and well-defined human hand or foot—migration in the bird being simply emigration in the man, generally impelled by a desire to make money or a better home to live in; unless when hunting after pleasure or scientific research. For even a cow in a park will shift about in search of uncropped grass to carry on the first law of life. All creatures (including man) follow the same inexorable law. Only, birds, having the pre-eminent power of flight, carry out their instinctive desires at stated times with much greater facility—hence the word migration.

Our forefathers were slow to believe that any British-born bird would leave its island home for a foreign one. No doubt certain birds, as the swallows, mysteriously disappeared every autumn; but it was thought that, like the bat and the bear, they hibernated at home—slept through the winter and spring, rather than migrated abroad. Modern observation—like reflections on the brimstone punishment of original sin—have destroyed this theory, and now it is believed that every one of our birds is more or less migratory.

An hour's trip across the Channel or to the south of France may suffice for some, while others must visit the Holy Land or the "Sad Soudan;" but, far or near, like man, foreign travel enters into the life of the majority of British birds.

For much of our recent knowledge of the migration of birds across our seas we are indebted to the British Association, which, happily, utilised the lighthouses and lightships on the British coasts as ornithological observatories. During 1884 schedules were issued to two hundred of these, and from more than one hundred of them returns were got; therefore it is unlikely that migration can go on without being observed either by night or day. For at night the light attracts the birds, and numbers are killed by dashing against the lanterns. In one night fifty starlings were thus killed at the Tuskar lighthouse, on the Irish coast, and all stations have a heavy annual death-rate from the same cause. The object of the Association is to collect facts, with the view of drawing conclusions as to the causes and extent, and the routes by which birds come and go. Each year adds interesting facts to the law of migration. It has been proved that, like the Gulf stream, or the annual course of summer and winter, there are two distinct migrations going on at the same time. One of these is illustrated by such birds as the swallow, which comes in spring to breed, and retires in autumn, with its brood, to moult and live during winter. Independent of this, however, there is a continual stream of immigrants week by week, and month by month, to the eastern shores of our islands, coming directly across Europe from east to west; and the reverse on the return journey after their mission has been fulfilled, like the coming and going of crowded railway trains at certain times of the year. They come or go in one broad stream, but denser on special lines or highways than others. These are mainly composed of well-known species which annually make our islands their winter quarters, and take the place of our summer birds. These observations show that birds reach this country by the same routes and at the same times as birds of the same species are leaving it. Such birds as crows, rooks, jackdaws, starlings, larks, sparrows, buntings, and finches are recorded as passing these stations towards Britain, and from it towards the Continent at the very same time. These common British birds are regarded as resident all the year round; but this is only true of the species—not of the individual. The blackbird, for instance, is one of our habitual residents, but is so because of the Continental ones that come in winter to fill the places of our native-born emigrant birds. In September the young leave us, and their place is taken by other young birds coming in October and November from districts east or south-east of Britain. Should our winter be severe, our old birds will also leave, and in their place we have an influx of old blackbirds from the Continent pushed forward by similar causes. In spring the Continental visitors leave, and our so-called resident blackbirds come back to their nesting quarters, which keeps up the supply independent of local influence. On the 11th, 12th, and 13th of November 1884 there was an almost continuous rush of them, night and day, noted at the East Coast stations. Severe weather on the Continent was probably the cause of this unusual migration, which was greatly in excess of any previous reports. The area of bird life in winter is greatly restricted by the covering of immense regions in the north with ice and snow, thus necessitating their entire abandonment for months by birds. The pressure thus caused in more temperate regions is relieved by the wise arrangement whereby the less northerly make way for the more northerly by moving for a time further south. The last fortnight in October is the usual period of the "great rush" of immigration. Heligoland was one of the Committee's outlying stations, and was of utmost importance, being situated on the main highway of migration to Britain. From June 28th to the end of the year Mr Gatte observed no fewer than 118 different species of migrants on that island. Some of these passed over in prodigious numbers, especially redstarts, whinchats, and starlings. "In duration and number the migration of starlings exceeds that of any other species." They passed from the 14th to 25th of October in immense clouds.

The Scottish returns were arranged by Mr Harvie Brown, who makes migration a special study; and the Scottish ornithologist will find his report full of interesting notes. He tells of a swallow taken at the Bell Rock lighthouse as early as March 13th; it was so exhausted that on admittance to the lighthouse it lay down and slept for sixteen hours. He says the Isle of May has proved one of the best stations in Scotland for migration observations. On the night of the 4th of October 1884—at the time of the total eclipse of the moon, quite dark—about a dozen gold-crested wrens were caught at the lantern. Their migration commenced on the 28th of August, and continued until the 16th of November. It seems strange how these tiny, weak birds are able to brave crossing the stormy North Sea. Great numbers, however—as well as other birds, great and small—perish when contrary winds and fogs set in during their flight. The year 1884 was noted in Scottish waters by the enormous abundance of gulls of different species. He says garvies or sprats (*culpea sprattus*), on which the gulls fed, were in tremendous abundance in the Firth of Forth—being literally alive with them, hundreds of tons being sold as manure. The exceptional abundance of the minute crustacea, known as "herring food," probably accounts for the unusual abundance of these sprats, and this extraordinary abundance of "herring food" so far south as the Scottish coast may have been due to the great accumulation of ice throughout the summer of 1884 along the West Coast of Spitzbergen. The cooling of the water by this huge mass of ice probably led to the retreat of the minute organisms, known as "herring food," further south than usual. Sprats and other fishes in great shoals followed their crustacean food, while gulls and other sea birds naturally followed the fish on which they feed—thus illustrating the universal law of migration. The whale follows the herring, the herring and sprat follow the minute crustacea, and these minute crustacea will doubtless prey upon life still more minute, until life itself is lost in water, and thus our globe wheels on until even it, too, may be lost in space. It is a corroborative fact, that, as the sprats did not enter the Firth of Tay, neither did that estuary participate in the unusual migration of gulls.

If that ornithological problem migration is ever to be solved, no better plan can be adopted than by the British Association; and it is pleasing to know that similar observations are now being made in Canada and in the United States.

The stations on the East Coast of Scotland from which reports were got extend from North Unst, Shetland, where the light on the lighthouse is 230 feet above sea level, to St Abb's Head, Berwickshire, where the light is 224 feet above sea level. On the East Coast of England they include the Longstone lighthouse (on the Farne Islands), and all the East and South-east Coasts to the Hanois lighthouse, Guernsey, one of the Channel Islands.

On the West Coast of Scotland they extend from Cape Wrath, Sutherlandshire, where the light is 400 feet above sea level, to Little Ross lighthouse, Kirkcudbrightshire, 173 feet above the sea.

From the West Coasts of England and Wales they extend from the Bahama Bank lightship to Start Point lighthouse on the Southern Coast. On the Irish Coast they extend from Fastnett, County Cork, to Drusy Island—40 stations in all—from which valuable reports have been obtained concerning the migration of our feathered friends.

Though the winter of 1884 was comparatively mild, there were "very large rushes" on the East Coasts of Scotland and England, from the middle of October till the end of the month, day and night. In Scotland, the heaviest rushes were recorded in the middle of November, a vast majority of the birds coming across the stormy North Sea. But the Southern movement to our East Coasts was begun in July, and from then to January there was a steady flow.

The main body of woodcocks arrived in two large and wide-ranging flights, known as the "first flight" and the "great flight," from October 10th to November 13th—extending from the Nash East lighthouse, in the Bristol Channel, to the Pentland Skerries, in the North of Scotland: they migrated during the night. Supposing they left Denmark at 5 P.M. and travelled across Heligoland, so as to arrive (as they did) at Nash at 3.30 A.M. next morning, their rate of speed was 52 miles an hour. Owing to the comparatively mild weather in 1884 the immigration of woodcocks continued over 142 days and nights.

One of the most interesting migratory features of 1884 was the large arrival of pied fly-catchers along the whole of our East Coast. A great many of these rather rare birds arrived during the first week of May 1885, at stations between Yarmouth and Pentland Skerries. At Flamborough they arrived in a north-east wind, accompanied by male redstarts. The result of this unusual movement was that pied fly-catchers were found nesting in various localities in England and Scotland where they had never previously been seen at any time of the year. The rare Arctic blue-throat also came in some numbers between September 8th and 18th. About a hundred of these handsome and comparatively rare birds were seen in one locality, on the Norfolk Coast, on the 12th.

The Flight of Birds.

The next thing to consider is the power and facility by which birds carry out their instinctive desire of migration.

It is one of the distinctions between man and many of the lower animals that they can fly, while he cannot. Our inferiors in other respects, it must be confessed that in the question of wings they, not we, are "on the side of the angels."

Man envies the bird for its marvellous powers of flight, and has repeatedly tried to supply the want by artificial means; but as yet without success—unless through the wingless flight of the balloon. But, with the knowledge now possessed of the laws which govern natural flight, with the increasing command of natural forces, and the greater mechanical skill of man, it is not impossible that artificial flight may yet be accomplished.

It is supposed by many that it is the lightness of birds—by air cells and hollow bones—that renders their flight possible; but insects, bats, and birds are as heavy, bulk for bulk, as most other creatures, and flight can be performed perfectly by animals which have neither air-sacs nor hollow bones.

Strange though it may appear, it is the weight—not the buoyancy—of birds which enables them to fly. Were they lighter than air flight would be impossible. They could merely float in the ærial ocean like a balloon, and, like it, would be liable to be blown hither and thither by every breath of wind. Birds are immensely heavier than the air they navigate, and it is this weight that gives the momentum, which, when properly directed, becomes transformed into sustaining and propelling power. The momentum which weight adds to a bird in full flight is strikingly illustrated in the effect produced when a bird strikes a lighthouse. A wild-duck has been known to smash one of the glasses of Eddystone lighthouse, with the result not only of its own instant destruction, but of the complete smashing of the glass, fully an inch thick. It is well known that this momentum has been utilised in the catching of such birds as the Solan goose, by fixing herring on boards, down upon which the bird comes with such force as to break its neck. They have been known to plunge half through the bottom of a boat engaged at the herring fishing.

The extent of wing does not bear any fixed relation to the weight of the bird, there being many heavy-bodied birds with small wings, and as many light birds with large wings. A recent scientist gives it as a general rule that the larger the bird the smaller, comparatively, are its wings. Thus, the sparrow, which weighs 339 times less than the Australian crane, has proportionately seven times more wing surface. Yet the crane has few equals in the height to which it rises, or the length of time its flight is maintained; while of all migratory birds it probably takes the longest journeys.

The form and size of the wing differs considerably in different species, and on these depend the flying powers of the bird. Thus long, narrow, sharp-pointed wings are associated with the highest powers of flight; while with short, rounded wings the flight may be rapid, but never long sustained.

The coot, diver, duck, and goose are examples of short-winged birds which fly with great rapidity; but, as speed is attained by the constant flapping of the wings, the severe muscular strain tires them sooner out. The "poetry of motion," as flight has been called, is best seen in the "sailing" birds, which include those provided with long, sharp-pointed wings. One of the best examples is the albatross, with its great, narrow wings, about fourteen feet from tip to tip, and only a foot in breadth. To rise from the water this huge bird has to flap violently on the surface with its wings, and for some time after it is fairly out of the water. Once launched, however, all visible exertion ceases, and with outstretched, motionless wings it sails along with majestic sweeps. "I have," says Captain Hutton, "narrowly watched one of these birds sailing and wheeling about in all directions for an hour without seeing the slightest movement of the wings; and have never seen anything to equal the ease and grace of this bird as it sweeps past, often within a few yards—every part of its body perfectly motionless, except the head and eye, which turn slowly and seem to take notice of everything." But this sailing motion is only possible when there is a breeze; when calm it sits on the water, or if it rises, it has to flap its monster wings continually. It is like the sailing boat which glides swiftly before a favouring breeze, but must be propelled by oars in a calm.

That a breeze is essential to the sailing or soaring of birds was also the opinion of Belt, who, in his "Naturalist in Nicaragua," states that "when it is calm the vultures are obliged to flap their wings when they fly, but when a breeze is blowing they use their specific gravity as a fulcrum, by which they present their bodies and outstretched wings and tails at various angles to the wind, and literally sail." I have repeatedly seen and watched our own sea-gulls do the very same in windy weather, when returning from the fields in the evening on their way to roost on the sands at Tentsmuir. They soar and wheel in space for miles, as far as the eye can reach them, without flapping their wings, and seem to have the power of even beating against the wind, by pressing their wings and tail and turning them to certain angles. And we all know that one of our most effective sails in the teeth of the wind is the old wing-shaped lug-sail of the fisherman. But no human invention can touch the sailing powers of the bird.

Mr A. T. Peal, writing recently from Assam about the adjutant bird, the clumsy-looking pelican, and other allied species, states that "they rise by flapping the wings vigorously until they reach a height of about a hundred feet. Then, if there is a breeze, they soar in wide, circular sweeps, the bird being otherwise motionless, and the wings extended rigidly." This soaring, he says, "goes on without the slightest flapping of the wings until the bird is almost out of sight." But the most remarkable, probably, of all the sailing birds is the condor of the Andes, the largest flying creature. It trails its wings on the ground when walking, and is as awkward as the swan on land. No bird has more difficulty in launching itself on its proper element, and unless it has room to take a run it cannot rise at all. [Our own little, long-winged swift has the same difficulty in rising from a level surface.] This is made use of by the natives: They place a dead mule on the brink of a steep ravine, where the condors soon collect; and, in their eagerness to devour the carcass, invariably push it over the cliff. The hungry birds also descend into the gorge, but from it (after their meal) they are unable to rise, and so become an easy prey to the crafty mountaineers. Once clear of the surface, however, no bird rises so high. It is believed to rise to a height of six miles. Humboldt saw it flying over Chimborazo, at a height of at least 23,000 feet, when, with a barometric pressure of only thirteen degrees, it seems to breathe as freely as at the level of the sea. No bird fascinated Darwin so much during his visit to South America as the condor. He watched one for half-an-hour without taking off his eyes, and never during that or any other time, while these birds were circling overhead, could he detect the slightest movement in the wings. "It is truly wonderful and beautiful," he adds, "to see so great a bird hour after hour, without any apparent exertion, wheeling and gliding over mountain and river."

Wonderful as is the soaring of many birds, a still more remarkable feat is that of hovering. This consists in the bird itself remaining stock-still, while its wings quiver with great velocity. Humming birds do this regularly when searching blossoms for their insect food. When thus poised the body is in a vertical position, maintained by the action of the wings, which are in such rapid motion that the eye cannot follow the strokes. There are other kinds of hovering, however, among birds of prey—such as the kestrel falcon or wind-hover, as it is aptly called, in which all motion, that of the wings included, is suspended for a time. Various naturalists account for this in various ways. For instance, "in a mountain gorge, swept by a stiff breeze, a hawk was seen hovering in search of prey. In the rapid current of air it remained apparently fixed in space, without the slightest flutter, for at least two minutes. It changed its position a few feet with a slight motion of its wings, and came to rest again apparently as motionless as the rocks around it." Mr Hubert Airy, who has been studying this question for years, says he always found, "First, a fresh wind blowing; second, the bird was facing the wind; and third, beneath it there was a steep slope facing the wind." These, he says, "confirm his theory that the bird, in hovering, is upheld by a slant upward current of air sufficiently strong to neutralise the force of gravity." The Duke of Argyll, on the other hand, says "he has never seen a kestrel's wings motionless when hovering, these usually having a rapid and tremulous action; and that, even when this action seemed suspended for a moment or two during a stiff breeze, he could still detect the quivering of the quills." This sort of hovering, he maintains, is perpetually accomplished, under the ordinary conditions of horizontal currents of air, by terns or sea-swallows over the surface of the sea.

I have repeatedly watched both kestrels and terns hovering, and come to the conclusion that both Mr Airy and the Duke of Argyll are right according to their view of the question. For, as the albatross can only sail with motionless wings so long as it has a sufficient breeze, failing which it must have recourse to the flapping of its wings—in other words, by taking to its oars—so the same with hovering as with sailing or soaring, the feat being done by the long-winged birds without any motion of the wings when the exceptionally favourable conditions prevail, while, under a less favourable condition, the bird, if it is to hover at all, must have recourse to a greater or less extent of wing and tail motion.

It has long been a puzzle how the muscular action necessary to keep birds on the wing so long as they often do could be possible; and Professor Tobridge, an American scientist, explained the recent discovery by his son that birds of prey and others have the power to lock together those parts of the wing holding the extended feathers corresponding to the fingers of the human hand. The action of the air on the wing in this condition extends the elbow, which is prevented from opening too far by a cartilage. The wings may keep this position for an indefinite length of time with no muscular action on the part of the bird. While resting in this way the bird cannot rise in a still atmosphere, but if there be a horizontal current, it may allow itself to be carried along by it, with a slight tendency downward, and so gain a momentum by which—with a slight change of direction—it may rise to some extent, still without muscular action of the wings. The Professor believed it quite possible for a bird to sleep on the wing.

Classification and Nomenclature.

As simplicity and fact are my chief objects in writing this book, so observations on the habits of each species are my principal study. We may quarrel over genera, families, or orders, each anxious to place the various arrangements in their assumed proper groups—arrogating to themselves perfection—like Sectarianism in religion, and yet all fail, in consequence of the complexity, or rather vast simplicity and complete perfection of Nature in all her faultless chain of universal harmony. So, paying little heed to what genus or family they may be considered by the arbitrary systems of man to belong to, I will describe each bird.

With the affinities so much interrupted in the comparatively circumscribed area on which I am writing, it were little short of presumption trying to classify the birds otherwise than by some previously recognised system. But this is secondary to the history and description of each species by itself, which is the true object of penning this unpretending work on the feathered friends of our youth, and to tell what I know of them individually from my rambles and experiences in life, and set down any striking incident of fact I can gather from others about them.

To arrange the 350 species of the British Birds (far less those of the St Andrews district only) in anything like the order so perfectly assigned, by Nature would be futile, for she leaves no gap in *her* system of affinities. Her circle is so very complete that when the various members of it have been scattered, and some lost, like a vast universal puzzle which has been minutely subdivided beyond human research, it is impossible to rearrange them in their original entirety in any circumscribed spot of earth.

Like one species Nature is perfect, for, as each bird is composed of countless feathers and downs, so was her system at first, in faultless order—like one species—from the golden eagle to the golden-crested wren; from the condor to the humming-bird; from the light and airy swallow to the clumsy, short-winged auk—with all the intervening species minutely dovetailed in between, until broken by time and civilization: some driven away from certain localities by drainage; some lost altogether, like the dodo from the globe, or the great bustard from the fens of Lincolnshire.

But, after all, the study of *each species*, with its more immediate genera, affords abundant scope to every one of us. Were naturalists as anxious to describe species by themselves as they are sometimes so minute in their definition to affine what they consider the *proper place* of each in their presumed genera, families, and orders, the study of Natural History would be much simplified and very much enhanced; instead of warm discussions about the unravelling of a tangled skein, which if unravelled would only prove what science already knows—the faultless order and complete perfection of Nature.

Maunder's "Treasury of Natural History" says—"It has long been customary to apply the terms animal kingdom, vegetable kingdom, and mineral kingdom to the three grand portions of the 'mighty whole'—into which, when speaking of the science of Natural History, the countless productions of the earth are systematically divided."

In this simple and obvious arrangement the animal kingdom is conspicuously pre-eminent, as it comprehends all organised beings provided with a mouth and stomach, and endowed with the powers of sensation and voluntary locomotion. The animal and vegetable kingdoms are, however, so intimately blended together that this description is an insufficient guide to distinguish those organised beings which may be said to be on the confines of either kingdom. The possession of nerves being indispensable to the power of motion—a nervous system has been considered the distinguishing characteristic of the animal kingdom; but in one division (*Acrita*—comprising polypes, infusoria, animalcules, sponges, &c.) no traces of nerves have hitherto been discovered. The best characteristic of the animal kingdom is the possession of a mouth or aperture through which food is received, and a stomach in which it is digested; and this includes all the organised beings which have ever been considered by naturalists to belong to the animal kingdom, except the various kinds of sponges. My limits are prescribed, so that further observations must be dispensed with here. But the following beautiful remarks by Mr Rymer Jones so admirably illustrate the difficulty of drawing an exact line between the animal and vegetable kingdoms that I gladly conclude in his words—"Light and darkness are distinct from each other, and no one possessed of eyesight would be in danger of confounding night and day; yet he who, looking upon the evening sky, would attempt to point out precisely the line of separation between the parting day and the approaching night would have a difficult task to perform."

Thus it is with the physiologist who endeavours to draw the boundary between these two grand kingdoms of Nature; for so gradually and imperceptibly do their confines blend, that it is at present utterly out of his power to define exactly where the vegetable existence ceases and animal life begins. And Southey beautifully says of night and morning when they meet—

"The nightingale not yet
Had ceased her song, nor had the early lark
Her dewy nest forsaken."

Therefore, when the exact confines of day and night can scarcely be defined, and when it is impossible to define the exact limits of two such widely different organizations as the animal and vegetable kingdoms, how can we define the exact genus, family, or order of a class of creation so varied—yet so much alike in their various affinities—as the birds? Some ornithologists think that the *inward* machinery—the *unseen* entrails—are the best criterion to regulate their order. Others deem the plumage; some the shape of the bill; others the toes, as in the scrapers—like the hen; or in the web feet for swimming—like the duck.

But the science of Nature is so very perfect and complete that it does not matter where we begin our study, for we will find affinities, order, and perfection everywhere, whether it be in the hen scraping on a dunghill, or in the eagle soaring over a mountain. Therefore, as none are progressive in intellect, like man, I prefer beginning with the bird which soars highest, reversing the order of man's history; for he has risen from blind barbarism to enlightened civilization—from the worship of idols to the worship of a myth—and still progressing in his belief of a Deity, which will only culminate in the great simplicity of knowing the truth and reverencing the one living and true God, as seen in Nature around us, and in the science of eternal order, for true knowledge consists in knowing that the eternal source of all life is *unsearchable* by man; but *true* and *infinite* though *unfathomable* and *unknown;* and no less true because the eternal origin of all order and of all existence is as the bottom of the sea; yet no less real although no sounding plummet can reach it. But, although man has risen from barbarity up to civilization—from a schoolboy to a professor; from an apprentice to a master—a golden eagle has not sprung from the egg of a wren, or learned to soar with the wing of a goose, for each is true to its own species, no matter what Darwin may say, without interfering with his great scientific theory. So I may as well begin with a golden eagle as with a golden crested wren.

TECHNICAL NAMES.

Regarding the meaning of species, genus, genera, family, and order, some of my young readers may like to know without turning up their dictionary. Therefore, to them I say that species means every *individual* bird in creation; for instance, a lark is one species; a linnet is another; a blackbird another; a rook another, and so on, or each one is a species in that class of creatures called birds.

A genus is a group of these birds, so closely resembling each other as hardly to be mistaken—as the raven, the carrion crow, the hooded crow, the rook, and jackdaw. These combined form the genus called *Corvus*, which means, in British, crow. The plural of *Corvus* is *Corvinæ*, as genera is plural of genus.

Corresponding with the Latin generic, name of *Corvus*, we have their Latin specific names of *Corax*, *Corone*, *Cornix*, *Frugilegus*, and *Monedula*, which, in full, read thus: *Corvus Corax*, *Corvus Corone*, *Corvus Cornix*, *Corvus Frugilegus*, and *Corvus Monedula*, and which, in British, simply means raven crow, carrion crow, hoody crow, rook crow, and daw crow. These are the specific and generic names joined, both in Latin and in British. My meaning will be seen still plainer by calling these birds by their simple names of the raven, the corby, the hoody, the rook, and the jackdaw; and as these five crows constitute the genus *Corvus* in the *Corvinæ*, so, for instance, the magpie, which is closely allied to the crow, forms another genus, called *Pica*, in the family of *Corvidæ*. The jay represents another, called *Garrulus;* and the chough another, *Fregilus*. Now, although these three last form each a genus by themselves, as the five crows united also form one, it is not because there are not more species of each genus in the world, but these are all that represent each genus in Britain (and it is the British, or rather the Fifeshire birds, I am chiefly treating upon). Thus it will be seen that these four groups (or genera)—*Corvus*, *Pica*, *Garrulus*, *Fregilus*, comprise the *Corvidæ*. There are other species or genera affined to these, but not so closely as to come within the scope of this particular sub-family; but, being grouped together in other genera, these joined form what is called a family, on the very same principle that several species—closely allied—form a genus, and allied groups or genera joined form the family. An order, again, comprehends a still wider group of birds more or less allied together. But, as before stated, where is all this grouping to end?—for all birds are more or less allied to each other, much more so than frogs, lions, sheep, buffaloes, or elephants can be said to be allied to them, although all Nature's creatures, and each form part of the vast science of Zoology. So it is quite sufficient if we describe each species by itself, as we would read and study the biography of some great man; or some noted whale or white shark; or the proverbial white elephant, and simply class each species in the one wide class of animated creatures called birds, which form the *second* class in the order of Zoology or the complete science of Natural History—the Mammalia being the *first*.

I think my young readers will see what I mean by all this jumble of Latin and British words—my object being to teach them to enter upon the science of Ornithology, or the history of birds, by the easiest means and shortest route. After being started, they can easily find larger and better works which treat on the same subject to take them further on.

NAMES OF THE DIFFERENT PARTS OF BIRDS.

Still aiming to teach, next in order come some of the technical names of the various parts of our feathered friends, without which a good deal of dictionary work might be needed to arrive at a satisfactory solution, but I shall use technical words as seldom as possible.

Feathers.

Acute feathers mean sharp-pointed.
Accuminate—With a long point, as in the neck feathers of eagles.
Abrupt—Cut even at the ends.
Alar quills—Wing quills, the larger feathers.
Upper alar—On the upper part or dorsal part of the wings.
Lower alar—On the lower or sternal part of the wings.
Axillary feathers—The long straight ones at the end of the humerus, under the wing.
Auricular—About the aperture of the ear.
Anterior—On the fore part of the back.
Abdominal—On the belly.
Cervical—On the neck—upper, middle, or lower parts.
Ciliary—On the edges of the eyelids.
Caudal quills—Terminating the body behind.
Caudal quill coverts—Feathers covering the caudal quills at their base.
Digitals—Covering the toes.
Elongated—Long feathers, as on crests, like the heron's.
Geneal—On the side of the head, under the eye.
Hypochondrial—On the sides of the body, under the wings.
Loral—On the space between the bill and the eye.
Marginirostral—Round the basal margin of the bill.
Occiput—The head.
Occipital—On the back part of the head.
Palpebral—On the eyelids.
Pectoral—On the breast—upper, middle, or lower parts.
Quill coverts—Feathers which cover the base of the quills.
Secondary or cubital quills—Those on the cubitus or forearm.
Tertiary or humeral quills—Those on the humerus or arm.
Scapulars—Long feathers at the extremity of the arm, as on the back.
Scutellar—In plates, like a shield.
Tibial feathers—Those covering the tibia or leg—the thigh.
Tarsal—Covering the tarsus or under half of the leg.
Wings acuminated—Drawn to a point, like the swift's.

Technical Terms of the Bill.

Bill compressed—When narrowed by the mandibles being pressed in laterally
,, cultrated—When each mandible is shaped like a ploughshare.
,, carinated—When each mandible has a ridge or keel.
,, culminated—When the central ridge of the upper mandible is very prominent, like a falcon's.
,, culmen—The central ridge of the bill.
,, depressed—When flattened, like a duck's.
,, deflected—When the upper mandible is bent down at the point.
,, imarginated—When either mandible is notched towards the extremity.
,, inflated—When the sides bulge out.
,, subulated—Bill long and slender, like an awl.
,, quadrangular—Of a square form.
,, carunculated—Having fleshy excrescences, like the wattles of a turkey.
Cere—The naked skin at the base of the bill.
Tomia—The cutting edges of the bill.

The Nostrils.

Lateral—On each side of the central ridge of the bill.
Ovoid—Shaped like an egg.

The Tongue.

Bifid—Forked at the end, as in the falcon's.
Extensile—Capable of considerable protrusion, like the woodpecker.
Cumbriciform—Having rings, like a worm, as in the wryneck and woodpecker's.

Legs and Feet.

Tibia—The feathered part of the leg (the thigh) above the tarsus.
Tarsus—The under part of the leg to which the toes are joined.

Feet, reticulated—When the scales are like network.

Feet, plated—When the scales are large and overlap, like a coat of mail.

Scabrous—Rough, rugged.

Phalanges—The joints of the toes.

Toe, reversible—Capable of being turned back, like the outer toe of some of the owls.

Toe, fimbriated—When the sides are fringed, like the grouse.

Digits—The toes.

Claws, retractile—Capable of being drawn back into a sheath, like the falcon's.

These may help my young readers in the study of other ornithologists, as I have carefully avoided using technical names as much as possible myself.

At the end of the volume is appended a syllabus of practical Taxidermy, or the art of preparing and preserving skins of birds or other animals, which will be useful to those preparing collections.

Divisions.

I shall now give the two divisions and the five orders I mean to adhere to, for the sake of reducing the species into some kind of system, and also give a synopsis of the whole, which will be of service in classifying each species and genus, which table will, at a glance, show to which genus, family, or order each species belongs to, according to the partial arrangement of this little work.

Land Birds and Water Birds.

The two divisions are the land birds and the water birds. A division so self-evident needs no comment. There are 178 different species or kinds of land birds, which live on or visit Great Britain, and 169 water birds—there being thus no fewer than 347 of our feathered friends which reside in or visit the British islands.

The five "*orders*," like the four fingers and thumb of the human hand, are the *Raptores* (or tearers), the *Insessores* (or perchers), the *Rasores* (or scrapers), the *Grallatores* (or waders), and the *Natatores* (or swimmers and divers). The first three are the land birds, the other two the water birds.

ORDER I.

RAPTORES OR TEARERS; VIGORS.

The *Raptores* or tearers answer to the accipiters of Linnæus —birds of prey, as they are called—are analagous to the carnivorous animals of the first great class in Zoology, the mammalia—such as the lions, tigers, wolves, &c.

This order in birds includes the eagles, falcons, vultures, buzzards, harriers, and owls. The compact, powerful body; predatory habits; decided partiality for animal food; strong, hooked bill; muscular limbs; strong, curved, sharp claws, often semi-retractile; the piercing eye and bold, upright bearing of this order separate them from all other birds. But appearances do not always tell the real nature of animal life—bird, beast, or man—as a thorough good and pure pug-dog is not necessarily ferocious because he resembles a bull-dog. The strong, hooked bill of the falcon or eagle, neither so powerful nor hooked as that of the parrot or cockatoo, and for obvious reasons—the first being made by Nature to tear flesh, the other to break seeds and nuts, and act as the lever to climb by.

The little quail, or partridge, are equally compactly built, although wanting their length of wings, bill, and claws. The owl, on the other hand, is loosely, almost slovenly, attired. This, too, is obvious—to suit her silent, nocturnal flight in search of mice, when the slightest noise would scare her tiny prey—all different, yet all alike perfect, and peculiarly adapted by the prudent foresight of wise, unerring Nature for the part assigned by her to be played by each.

After giving a brief synopsis of the Raptores, I shall then begin with the first order, and describe each species, and tell what I know about them, chiefly from my own observations. The rest of the Orders shall be treated the same way when the time comes to take each separately. I shall include in each synopsis all the birds I know of personally, and all I know to have been found in Britain; but shall chiefly specify those I have found myself, or known to have been found, around St Andrews. By this means the book may answer the purpose of a condensed history of the British birds.

Synoptical Table of the Raptores or Tearers.

Order.	Tribe.	Family.	Sub-Family.	Genus.	British Specific Names.	Latin Specific Names.	Abbreviations.
1	..	...	...	1	Griffon Vulture - -	*Vultur Fulvus* - -	
...	...	2	...	2	Egyptian Neophron -	*Neophron Perenopterus*	O.V.
...	..	3	1	3	Golden Eagle - -	*Aquila Chrysœta* -	I.
...	...	...	...	4	Cinereous Sea Eagle -	*Haliœtus Abbicilla* -	I.
...	...	...	...	5	Osprey - - -	*Pandion Haliæetus* -	I.
1	...	...	2	6	Hawk - - -	*Astur Palumbarius* -	I.
...	...	...	...	7	Sparrow Hawk - -	*Accipiter Fringillarius*	I.
...	...	...	3	8	Jer-Falcon - -	*Falco Islandicus* - -	O.V.
...	...	..	...	...	Peregrine Falcon -	*Peregrinus* - -	I.
...	...	...	...	...	Hobby - - -	*Subbuteo* - - -	P.V.
...	...	...	...	...	Orange-Legged Hobby	*Rufipes* - - -	O.V.
...	...	...	...	...	Kestrel - - -	*Tinnunculus* - -	I.
...	...	...	...	...	Merlin - - -	*Æsalon* - - -	I.
...	...	...	3	9	Common Buzzard -	*Buteo Vulgaris* - -	I.
...	...	...	...	...	Rough-Legged Buzzard	*Lagopus* - - -	O.V.
...	...	...	...	10	Honey Buzzard - -	*Pernis Apivorus* -	O.V.
...	...	...	...	11	Marsh Harrier - -	*Circus Rufus* - -	I.
...	...	...	..	...	Hen Harrier - -	*Cyaneus* - - -	I.
...	...	...	...	...	Ash-Coloured Harrier	*Cineraceus* - - -	P.V.
...	...	...	4	12	Kite or Glead - -	*Milvus Vulgaris* -	I.
...	...	...	...	13	Swallow-Tailed Elanus	*Elanus Furcatus* -	O.V.
...	...	4	...	14	Great-Horned or Eagle Owl	*Bubo Maximus* - -	O.V.
...	...	...	...	15	Long-Eared Owl -	*Otus Vulgaris* - -	I.
...	...	...	...	...	Short-Eared Owl -	*Otus Brachyotas* -	P.V.
...	...	...	...	16	Scope-Eared Owl -	*Scope Aldrovandi* -	O.V.
...	...		...	17	Snowy Owl - -	*Surnia Nyctea* - -	O.V.
...	...	...	...	18	Barn or White Owl -	*Strix Flammea* -	I.
...	...	...	.	19	Tawny Owl - -	*Ulula Stridula* - -	I.
...	...	...	..	20	Tengmalm's Night Owl	*Noctua Tengmalmi* -	O.V.
					Little Night Owl -	*Passerina* - - -	O.V.

Abbreviations—The Letter I. means Indigenous or Native; P.V., Periodical Visitant; O.V., Occasional Visitant.

It will be seen that there are 29 different *species* or kinds of birds in the 20 genera, as set down in this synopsis of the raptores.

In adhering to *this* order of affinity, I do so quite indifferent although other ornithologists may think they might be better classified, which, after all, is a matter of arrangement and opinion. The great question has long been solved by science that in Nature there is one perfect cycle of affinity running through all life—from the zoophite to man—although some are now extinct. Therefore let each naturalist arrange them as he thinks best, only let him describe each *species* correctly.

From the synoptical table it will be seen that I have two vultures first—the Griffon Vulture, *Vultur Fulvus*, and the Egyptian Neophron, *Vultur Perenopterus*—not that they have any particular claim to be so, or the best types to represent the order, but the reverse; for, as they are placed first, so are the harriers, kites, and owls placed last, leaving the true types, the falcons, in the centre—a system of describing a living circle quite obvious. I may remark, however, that the circle should finish with the harriers and kites, leaving the owls to form a family group by themselves; but as they are kept distinct by being described as *nocturnal*, or night birds of prey, in distinction to the diurnal, or daylight birds of prey, this explanation (though somewhat tedious) will be found so far correct, although in the British birds there are several links awanting to complete the chain between the falconidæ and the owls.

As two of the vultures—the griffon vulture and the Egyptian neophron—found their way to Britain and were shot—one in Ireland, the other in Somersetshire—they are set down by British ornithologists as *occasional visitants*, and as the facts *did* take place, there they stand in our synopsis on the same principle as that a Sandwich Islander or a native of Otaheita (those primitive types of humanity at the one end of the human circle, with the Kaffir and Hottentot at the other) would be called an O.V. in a history of the human races visiting Great Britain, should such swarthy specimens of humanity find their way, either by sail or steam (as they could not by wings) to these rocky homes of freedom and progress, where exist the true, intellectual, and best types of mankind.

For the sake of simplicity, I shall divide our rapacious, outlawed friends into three families—the *Vulturidæ* or Vultures, the *Falconidæ* or Falcons, and the *Strigidæ* or the Owls. These, again, can be sub-divided into sub-families and genera as we proceed.

Now, as vultures are not found in these islands, for the sake of information, and to back up, as it were, our solitary friends the griffon and neophron, who had evidently lost their way, I see no harm in describing them, and giving a brief history of the family.

THE VULTURIDÆ.

The vultures, which form one of the typical families of the order raptores, are distinguished by having the head more or less divested of feathers, possibly to facilitate their forbidding system of gorging their carrion food, as a whaler would have his arm bare to let him dig easier into the blubber.

In Henry IV., when Pistol brings the news of the old King's death, and that Falstaff's "tender lambkin (young Prince Hal) is King," and when Falstaff, elated, exclaims, "Happy are they which have been my friends; and *woe to my Lord Chief-Justice*," Pistol aptly rejoins, "*Let vultures vile seize on his lungs also.*" And in Henry VI., when alluding to the same dead King, Henry V., in the words of a true poet, Shakespeare makes Sir William Lucy exclaim—

> "Thus, while the vulture of sedition
> Feeds in the bosom of such great commanders,
> Sleeping neglection doth betray to loss
> The conquest of our scarce cold conqueror,
> That ever-living man of memory,
> Henry the Fifth."

The bill is straight at the base, and covered with a cere—either thinly covered with hair or naked—plain, or carunculated, with wattles, like a turkey cock. Their legs are muscular, and generally short; the tarsi and feet naked—the latter armed with strong but not very hooked talons or claws. They subsist chiefly on carrion and decomposing animal matter; but those which come nearest the true type—the *Falconidæ*—occasionally prey upon life. They are mostly all inhabitants of warm regions, where they act as scavengers—a very important and salutary part in the wise economy of Nature—in these hot climates, by clearing the surface of noxious and putrid remains of animal life. Their wings are ample and powerful, and their flight, which can be long sustained, is generally in wide circles, wheeling round and round, broader and higher, to have a greater sweep and altitude, from whence their telescopic eyes can pierce the farthest distance in search of food.

It was long, and so far justly, thought that it was the power of scent which directed this class of birds to their putrifying food; but, although they do possess this faculty in a high degree of excellence—for Nature is no niggard of her gifts when she has a purpose to fulfil—yet it is more due to their keen and piercing eye, by which their useful mission on the earth is so beneficially accomplished. Although Mr Waterton says he is "convinced that it is the olfactory nerves coming in contact with putrid matter, and not by its eyesight, that the vulture is made aware of its prey; for, as the air produced by putrefaction is lighter than common air, it ascends and is carried through the atmosphere by every gust of wind; the vulture, soaring above, and coming in contact with this tainted current, instinctively follows it down to its source, and finds that which is destined by all-wise Nature to be its support, and be one of the scavengers of this globe;" I hardly agree with this, for vultures eye their prey often before life is extinct, and before any putrefaction commences. In general, they are of a cowardly nature, preying on dead carcases and offal—often putrid. Their gullet dilates into a large crop, which, when distended with garbage, projects above the furcular bone. When gorged the vulture is reduced to a state of stupidity (a pretty fair type of scavengers generally), and a fetid humour is discharged from their nostrils.

The vultures, as Mr Swainson remarks, "are the greatest scavengers of Nature in hot climates, where putrefaction is most rapid and most injurious to health, and the disposition of their numbers is regulated by an all-wise Creator according to their usefulness." They are sparingly scattered over the south of Europe. In Egypt they are more numerous; but in tropical America, although the species are fewer, the individuals are much more plentiful. No sooner is an animal dead than its carcase is surrounded by numbers of these birds, which suddenly appear coming from all quarters, in situations where *not one* had *just before* been seen. The bareness of the head and frequently of the neck is most apparent in those whose geographical range is limited to the New World. At the head of this division stand two remarkable species—the celebrated condor of the Andes, and the *Papa* or king vulture of the Brazilian forests. The first is well-known for the loftiness of its flight and its amazing strength, while the latter is the only species (except the neophron) whose colouring is not dark or sombre. The condor measures eleven feet across the wings when extended, and his strength is equal to his great size. Another gigantic species, which inhabits the greater part of Africa, is called the sociable vulture—*Vultur Auricularis*—its head also and greater part of the neck are red and naked. The folds of red, naked skin, and the black, curling hairs and feathers—like a ruff—give this huge bird a singular and forbidding appearance. In size he is fully equal to the condor. The nest is usually built in the fissures of high, rocky cliffs. Like most of the species, the number of eggs is generally two or three. During incubation the male keeps watch at the entrance of the cave. It has been wisely observed of this gigantic species that it is a "fit natural machine for assisting in the clearance of the soil of Africa from the putrid bodies of elephants, hippopotamuses, rhinoceruses, and giraffes." It haunts the caverns of rocks, and is altogether a mountain bird—although it feeds on the carrion scattered on the plains below. Its nights are spent among the lofty crags, where it retires to repose when it has sated it appetite.

Levaillant saw large flocks of them perched at sunrise on the precipitous entrances to their abodes, and sometimes the rocky region was marked by a continuous chain of these birds. Their tails are worn down by friction against their craggy haunts, and by the soil of the plains in their laborious efforts to raise themselves into the air, especially when nearly gorged with carrion. But when on the wing their flight is grand and powerful. They wheel higher and higher up their aerial vault, till their great bulk is lost to human ken. Like a stone cast upon the unruffled face of a lake slumbering in the bosom of the mountains, so does the vulture, like a living stone cast upwards against the azure face of the sky, ever widen the receding circle of its upward flight, until, like the spent rings on the lake, they become gradually attenuated till lost in the blue vault above. And as Shakespeare beautifully says in "Timon of Athens"—

"No levell'd malice
Infects one comma in the course I hold,
But flies an eagle flight, bold and forth on,
Leaving no track behind."

But though beyond the range of human vision, the natural telescope of the vulture is at work. The moment any animal within the wide sweep of that piercing eye sinks to the earth in death, the imperceptible vulture detects, and swoops down upon it.

Does the hunter bring down some large quadruped beyond his powers to remove, and leave it to obtain help? On his return, however speedy, he finds it surrounded by a *flock* of vultures, where not one was seen but a quarter of an hour before. In his "Thalaba, the Destroyer," Southey gives a dreary but true picture of the longing of a parched wanderer in the desert:—

"Oh, for the vulture's scream,
Who haunts for prey the abode of mankind!
Oh, for the plover's pleasant cry,
To tell of water near."

Before quitting this subject, I may mention that Audubon, in his "Birds of America" insists, and rightly too, that it is the organs of *sight*—not those of smell—that enable vultures and other birds of prey to discover carcases at such immense distances as they do. He says—"We were led to question the accuracy of this opinion on the observations of some travellers, who remarked birds of prey directing their course towards dead animals floating in the rivers of India, where the wind blows steadily from one point in the compass for many months in succession. It is not easy to conceive the effluvia from a dead carcase in the water should proceed in direct opposition to the current of air and affect the olfactory nerves of birds at so many miles distant." In order to satisfy himself on this point he (Audubon) "made several experiments, one of which was—he stuffed and dried the skin of a deer, exposed, and retired from it. A vulture soon approached, attacked its eyes (which were made of painted clay), then walked to the other extremity, tore some of the stitches, until much of the fodder and hay with which it was stuffed was pulled out; and, after *repeated* attempts to discover flesh, took to flight. Afterwards, he had a large dead hog put into a ravine, and concealed it in the briars. He saw many vultures pass over it, but some approached it after several dogs made a meal of it. He then tried to approach it himself, but found the stench too intolerable, and had to retire." So that, if scent was all that led the vulture to its putrefying food, this hog might have been consumed by maggots for all that vultures knew. I can so far corroborate this from personal observation at the side of Loch Brora. A gamekeeper showed me the carcase of a large red-deer stag, about twenty stone weight, which had lain there under the trees for several days, in April 1881, close to Carrol Rock, where about a dozen ravens roosted every night. It lay untouched because unseen amongst the underwood; it had a very strong scent, but would not have lain a single day untouched if exposed to their piercing eyes on the open hills. Even Job, in the sublime old drama of that name, says—"There is a path which no fowl knoweth, and which *the vulture's eye hath not seen.*" Some authors, however, maintain that the vulture finds out carrion lying in the midst of dense forests where the eye could not penetrate. But, as to this, I cannot speak from my own experience, which, after all, is the chief feature of my little book.

THE GRIFFON VULTURE *(Vultur Fulvus). Linn.*

This vulture is not so large as the preceding. It inhabits the mountainous parts of the north of Europe, Silesia, Dalmatia, the Tyrol, Spain (where, near Gibraltar, it is abundant), the Alps, the Pyrenees, Turkey, and the Grecian Archipelago. Its nest is usually made upon the most elevated and inaccessible rocks, or upon the highest trees of the forest. Its eggs (like the rest of the tribe) are generally two or three in number, of a dull greenish or greyish white, slightly marked with pale, reddish spots, and have a rough surface. The one I measured is $3\frac{5}{8}$ long by $2\frac{5}{8}$ inches.

The single occurrence of a solitary specimen of this bird in Ireland being communicated to Mr Yarrel, he figured it in his Supplement to his "British Birds." I have therefore introduced it here. We have the best account of its habits by Le Vaillant, who says they lay two eggs generally, but sometimes, though rarely, three. At this time they resort in great numbers to the rocks in the highest situations, and that a single precipice will contain as many nests as there are suitable places for them. The birds live very amicably together (like our common guillemots, rooks, or herons). He has seen three nests placed side by side in the same cave. During incubation the male stands sentinel at the mouth of the hole, thus pointing out where the nest is, but that is almost always inaccessible. He often risked his life to examine the eggs and young birds; and, with the aid of his Hottentot assistants, sometimes overcame all difficulties—although the approach to their retreat was so slippery as greatly to increase the danger of getting at the den itself. Like all birds of this tribe it feeds principally upon carrion, to which it is often attracted in considerable numbers. When it has once made a lodgment upon its prey it rarely quits it while a morsel of flesh remains, so that it is not uncommon to see it perched on a putrefying carcase for several successive days. It never attempts to carry off a portion—even for its young—but feeds them by disgorging the half-digested carrion from its maw. But this characteristic is not confined to the vulture. For the common pigeon and rook, having first filled their own crop or maw, fly home to their young, and by disgorging feed them. Our next vulture friend is

THE EGYPTIAN NEOPHRON *(Vultur Perenopterus), Linn.*,

which stands next in order of the *Raptores*, and set down also as an O.V., from having once been shot in Britain. It is the smallest of all the vultures, which, besides its usefulness as a scavenger in Egypt, may have given rise to its synonym of "Pharaoh's chicken." It inhabits chiefly the shores of the Mediterranean sea. The adult has the front of the head, the upper part of the throat, and cere naked, and of a bright yellow or pale flesh colour. The plumage is pure white, with the exception of the quill feathers, which are black. The legs, feet, and base of the bill are yellow or pale grey, which handsome livery gives the neophron—in spite of his carrion-gorging habits—a rather striking and attractive appearance. This general bearing brings him nearer to the typical falcon than his more forbidding though as useful congeners. The plumage is the same in the adults of both sexes. But the young of the first year are of a dark brown, slightly spotted, with lighter brown and white, and do not attain their mature livery until two or three years. The specimen alluded to was shot in Somersetshire, in October 1825. When first seen it was feeding on a dead sheep, and had so gorged itself as to be unable or unwilling to fly to any great distance, and was therefore approached without much difficulty and shot. Another bird similar was seen at the same time upon the wing, at no great distance, which remained in the neighbourhood a few days, but could never be approached within range, and was supposed to be the mate of the one killed. Mr Selby, who had the shot bird in his possession for description, says—"Judging from the description given by Temnick and others—indicate a young bird, probably of the first or second year." Like many other species of this order the changes of the plumage in its progress to maturity, and the different appearance it has under each, have given rise to the fictitious creation of *several* supposed species, as is evident from the great number of synonyms—no less than twenty can be quoted—which could all be traced to the same species.

In its affinities it is closely allied to those American vultures which form the genus *Cathartes*, as now restricted by many ornithologists, and may, in fact, be considered as their representative on the ancient Continent. It also, in some respects, connects the more typical vultures with the genus Gypætus, leading immediately to the *Falconidæ*, represented by that powerful and daring species *Vultur Barbatus*, or bearded vulture. In these genera a deviation of structure is perceptible, which serves not only to complete the circle of their own family, but to connect it with those belonging to the other order of the class. Its habits are very similar to those of the American *Catharte*, as it rejects no dead animal matter, delighting even in the most putrid carrion. On this account it is held in deserved respect, and protected by the inhabitants of those countries in which it abounds as an able coadjutor in clearing away the filth and putrid matter which, in climates so hot, would otherwise become pestilential. It occasionally preys upon lizards and other reptiles, but is rarely known to attack the smaller living quadrupeds or birds. It is also of a more timid and cowardly nature—destitute of the boldness that characterises the larger and more typical vultures. But it possesses great power of flight, from the wings being very long and ample. The tail is equally long and wedge-shaped, which enables it to soar in circles with great buoyancy. And, doubtless, as in the rest of the tribe, it is in their ærial flights that it spies its food below. Its cry is seldom heard, and when at rest it sits upon the ground with the wings drooping—a habit common to the Vulturidæ.

Very little information is to be had in the works of Continental naturalists with regard to the habits of this species. Temnick says that they are numerous on the Spanish side of the Pyrenees, in Malta and Turkey, sometimes in Italy, and as far as Switzerland, but nowhere so abundant as in Africa, and they breed in those precipices which are the most difficult of access. A recent egg-collector says—"Two nests of this species were found in the vicinity of Arles, on the Pyrenees, each of which had two eggs. The next summer a third nest was found on the Pic de St Loup, near Montpelier, which had in it only one egg." But he omits to say whether or not the egg was deep sitten or the bird only in course of laying.

Mr Wolley (another egg-collector) got eggs of this species from a dealer in eggs, when on a visit to Tangier, who assured him that the old bird was shot on the nest of one of them. The dealer said that it makes its nest at the end of March, in the crevices and caves of rocks—usually in an inaccessible perpendicular cliff; that it lays in April one or two eggs, which are hatched about the end of May—the young remain in their nest till July, before which time they are incapable of flight. Of four sets of eggs taken in Western Barbary there were two pairs and two single eggs.

The neophron is nowhere so plentiful as in Egypt, particularly about Cairo, where it was considered a great breach of law, at the time the Abyssinian traveller Bruce wrote, to kill one. In Cairo and other Egyptian towns it occupies the roofs of houses (like our common jackdaw) in company with black kites, hawks, crows, and turtle doves—all forming a distinct population, not less numerous but more peaceable than that below. Bruce says that the Arab name of Rachama still applied to this bird proves that it was the emblem of parental affection, which is so frequently mistranslated *eagle* in the Bible. "Oh, that I had the wings of the eagle to flee away and be at rest," is an apt expression, as the vulture can fly at the rate of 150 miles an hour. The old proverb says truly—"Riches certainly make themselves wings; they fly away as an eagle towards heaven." And old Jeremiah also truly says—"Though thou should'st make thy nest as high as the eagle, I will bring thee down from thence, saith the Lord;" which Obadiah reiterates by saying—"Though thou exalt thyself as the eagle, and though thou set thy nest among the stars, thence will I bring thee down, saith the Lord." And Samuel says that Saul and Jonathan "were swifter than eagles and stronger than lions;" thus identifying the king of birds with the king of beasts.

In South Africa, Le Vaillant found a pair attached to most of the dwellings of the natives, generally seated upon the fences with which they enclose their cattle, where they are not only uninjured by the owners, but are objects of pleasure to them—eating greedily what they refuse. They are occasionally collected in numbers round their food, like the larger vultures. During the French occupation of Egypt the first shot of the cannon brought these and other birds of similar tastes from every direction. For as the blue-bottle fly will collect and buzz around the shambles in time of peace, so does the vulture—true to its own instinct, in warm climates—wheel above the field of battle and pounce upon the dead in times of barbarous war. The proof that boasted civilization has not yet fulfilled its harmonizing mission upon earth—if it *ever will* do so!

The eggs of this species are highly coloured, and differ very much in their shape and colour—some are dark red, like the kestrel's or merlin's; others lighter, more like the golden eagle's, but smaller. The egg they are likest is the osprey's—some are beautifully marked with light and dark streaks, blotches, and spots, on a purplish ground; some have a lighter ground and darker spots, but, as birds' eggs are merely the painted outside shell of the embryo young within, they vary much in colour and size—even of the same species. And yet there is hardly a more interesting subject for study in Nature's world than a bird's egg. The shell itself is a marvel. If you notice a fowl seeking food you will see it picking up small bits of shells, bones, sand, and gravel. Now these are the materials from which the shell of the egg is made—chiefly of *carbonate of lime*—which the bird has the marvellous power of dissolving and spreading with equal thickness over the whole surface of the egg, which at first has only the thin skin over it which we find under the shell, so that when laid, the young bird comes forth enclosed in the most perfect mineral packing-box in the world.

I need not follow this interesting subject further, but merely say that from Hewitson's beautiful "Coloured Illustrations of the Eggs of British Birds" I see the eggs of this vulture are about $2\frac{3}{4}$ inches long by $2\frac{1}{8}$ inches in diameter. The size of the bird shot in Somersetshire was 5 feet 9 inches across the wings, and 2 feet 7 inches from beak to tip of tail. From this brief sketch my readers can form a fair idea of the two rare vultures found in Britain.

THE FALCONIDÆ.

As I have placed the vultures, through these two rare foreigners, *first* in the order of the Raptores, I set down this Falconidæ next, as the true first of the order—the Gypogeranidæ is awanting—none of this family having been found in Britain. The Falconidæ, which therefore form the second typical family of the order in Britain, embrace *all birds of prey that feed in the day time*, in distinction to the owls or nocturnal birds of prey, which constitute the third and last family of the order. (Linnæus and other systematists included all the diurnal birds of prey in the extensive genus Falco). In these, except in the species immediately connected with the vultures, the head is clothed with feathers, the bill short and strong—much hooked; and in the typical species, such as the true falcons, curving from the base, which is covered with a naked coloured cere (all that is left of the naked head of the vulture). The nostrils are in the cere, the legs are muscular and strong—but not very long—

unless in the sparrow-hawk and gos-hawk. The tibial joint or thigh, however, is pretty long, which acts as a lever when pouncing upon and seizing their prey. They seldom use their beak in killing. This is done by their powerful talons—one stroke behind the head, another at the heart, generally suffices. The bill is then used as a knife or pair of scissors in cutting up the body. To aid them in the mission Nature has assigned them to do, their claws are very sharp and strong, much curved, and, in general, partly retractile. To symmetry of form they unite great strength and activity, and the typical groups possess a power of flight—both as to speed and duration—superior to most of the feathered race.

Being armed by Nature to carry out their mission of rapine, and acting on the same principle with *life* which the vultures do with death—thinning exuberance of animal life. And if it were not for the pail or the burn, the tub or the sea, utilised by prudent housewifery or reckless youth, Nature would have to provide some other species of human vulture or eagle to keep down the swarm of kittens and puppies, which otherwise would, like Pharaoh's plagues of frogs and lice, infest the homes of civilized life. And, regarding the varying species of humanity, war, especially so-called *religious* ones—cupidity, self-interest, and hunger, and the natural desires of man and woman, called love—along with Nature's own balancers of life, such as fevers, choleras, and diseases of all kinds, make a pretty efficacious substitute for those useful birds of prey—the vulture or the harrier, the eagle, the hawk, or the falcon, in keeping the world wisely safe as regards the universal balance of species. However, regarding our feathered friends the *Falconidæ*, their power of sight, like their claws, is equally acute and piercing. They are also distinguished by courage and audacity—they know they are armed, and are not slow in using their weapons when playing their part in the wise economy of Nature. They prey almost wholly on living creatures, which they either strike on the wing (as the falcons or hawks) or pounce upon it on the ground, like the buzzards or kites. Birds and quadrupeds are the usual food of most of the species. Some, however, prey on fish, like the osprey, and others live on the larger coleopterous insects. They tear their prey in pieces with their bill and claws; but their claws are the weapons by which they kill, squeezing their victims to death. As complete plucking or skinning would be too tedious work, they swallow portions of the feathers, bones, or fur, which they afterwards eject from the mouth in pellets.

They generally lead a wandering, solitary life, or associate in pairs—male and female—a habit with eagles. The numbers of this family, as might be expected from their typical character and mission, are numerous, and distributed over the globe; for wherever there is exuberance in life there will be robbers and plunderers; as wherever there is death there will also be scavengers and gravediggers.

Many of the species, in their progress to maturity, have great changes of plumage, sometimes taking two, three, four, and even five years to mature; consequently, an augmentation of supposed species and confusion has been the result, through want of discernment and hasty conclusions.

The gradual increase of knowledge, however, and careful observation, have cleared up many of the doubts in which the history of several species have been so long involved. Amongst those naturalists who have recently done so much for the advancement of this branch of science, Temnick and Montague deserve to be ranked amongst the first, as it is mainly due to their close study that many of the essential points have been cleared up.

The Golden Eagle or Mountain Eagle.

(Falco Chrysaëtos.) Linn. *(Aquila Chrysaëtus.) Selby.*

> "Nay, if thou be that princely eagle's bird,
> Show thy descent by gazing 'gainst the sun."—*Henry VI.*

Having introduced the two vultures into this little work, I shall now introduce a native of the wild and rugged rocks and heath-clad hills of Scotland—"My own, my native land," as Scott has it—and draw the portrait of a true Gael—that king of birds, the so-called golden eagle. I say so-called, for, if we except his eye, cere, legs, and tips of feathers, there is nothing golden about him, but a plain, dusky-brown, daring, and bold-looking bird—in every respect a true type of bonnie, brave, auld Scotland, whose hardy sons, much more than the military eagles of Rome, have swept over and helped to colonize every quarter of the globe, and on many a freedom's battlefield at home and throughout the world, when helping to build up the great British Empire, have proved themselves amongst men what the golden eagle is amongst birds. For notwithstanding his partial misnomer, a genuine Scot and true Briton is the golden eagle, and stands at the head of the Falconidæ, which is divided into a sub-family *Aquilina*, genus *Aquila*—hence the Latin name *Aquila Chrysaëta.*

The distinguishing characters of this sub-family consist in superiority of size, in having the bill longer and straighter at the base than in the more typical falcons, in which respect they come nearer the vulture family. The feathers of the head and neck are sharp-pointed. In some of the species the head and throat are partially bare. Their legs are generally short and muscular, their talons long, very strong, and much hooked. In this sub-division are the most powerful and destructive birds of the family, although some of them have more of the vulture in their form and disposition, are less predaceous—often content to feed on prey already dead, and, in some intances, on carrion. This, however, does not apply to the golden eagle, which is the only species of the sub-family found in Britain, is the largest and noblest of all the European eagles, and, as a favourite of Nature, is said to live a hundred years to carry on its mission of murder. Having said this much about the sub-family in which the golden eagle is placed, I shall now treat of his own generic character. As usual with the sexes of this family the female is much the largest, being from beak to end of tail 37 inches long, and 87 inches in extent of wings; while the male is only 33 inches from beak to end of tail, and 72 inches across from wing to wing—the one ranging from 3 feet to 3 feet 3 inches long, and from 7 feet to 8 feet across—the other from 2 feet 6 inches to 2 feet 10 inches, and from 5 feet 6 inches to 6 feet across from the tips of the wings. Bewick mentions one killed near Warkworth, which was 11 feet across the wings. The female weighs from 12 to 16 pounds. The bill and claws are nearly black, shaded at the base with greyish blue, with a yellow cere, eyes large, deep sunk, and covered by projecting brows, which gives him, even in confinement, a wild, truculent look; the iris bright hazel, almost chestnut. The bill is 2¾ inches long, straight at the base, strong, and much hooked at the point, the sides inclining upwards, forming a narrow ridge or culmen —the tomia or cutting edges of the mandible having a faint lobe near the base of the hook. The wings are ample and powerful, reaching when closed to the end of the tail. The general colour of the bird is deep brown, glossed with purple. The legs are yellow, covered with feathers down to the toes, and measure 3 inches round; the thigh 7½ inches; the tarsus 4½ inches long; the toes short but thick, and armed with long and very sharp curved talons, grooved underneath—those on the outer and hind toes being the longest. For while the hind and second toes are only about $1\frac{3}{4}$ inches long, their formidable talons are nearly 3 inches long, which enables him or her to pierce the heart and squeeze to death almost instantaneously such birds as plovers and grouse, as if Nature meant no bungling cruelty in her work, designing him to be while cruel yet merciful. As Othello said when stabbing Desdemona—

> "I that am cruel am yet merciful;
> I would not have thee linger in thy pain."

But, what does all our study or moralising come to?—but to show how wise and perfect Nature is in all her works. From the claw of the golden eagle to the bill of the golden-crested wren—from a blade of grass up to the meridian sun—all is a science, a study, and perfection. The stars are numbered—worlds wheel in space, each in their own circle—have their own order—their own family, so to speak—their own sub-family—even their own genus, perhaps their own creation, for aught we know. Yet all wheeling in harmonious order—never jarring, unless for the wisest purpose—all working in a science of eternal order. This known—the science of *all life*, as well as of birds, is known—yet the Creation and the Creator alike unsearchable and unknown! Touching this, as already said, "all we know is, nothing *can* be known" beyond the one grand order—*Life*, and the other equally powerful order of *Death!* The one caused by the other—even though it be by the talon of a golden eagle piercing the heart of a grouse, or a blow from the club of Cain. The golden eagle is not more distinguished for its size and strength than for its destructive habits, although it does not have the same faculty of pursuing its prey upon wing as the falcons and hawks; for, though its flight is very powerful, it is not capable of the rapid evolutions which mark the aërial attacks of these birds; consequently their prey is mostly pounced upon on the ground. They attack the larger birds and some animals, not even despising the little mole; but, unless pressed by extreme hunger, refuse to feed upon carrion or any prey already dead. They prefer to hunt and kill for themselves. Their form is compact and strong; their gait and aspect active and alert, entirely devoid of the sluggish look which characterises the genera more closely allied to the vultures. This powerful and magnificent bird does not frequent the lowland part of Scotland, to which I intend chiefly to confine my work; and, so far as I know, has only been seen twice in the district of St Andrews during the last fifty years. About

1840 I recollect seeing a large bird soaring above Stravithie Wood and Prior Moor—all woods and moorland wilds then—which was set down by myself and others as a golden eagle. The snow was on the ground at the time. About thirty years ago another two were seen in the vicinity of Mount Melville and Drumcarrow Craig. Several people tried to shoot them, but could not get within range; and, from observation noted at the time, they were a pair of golden eagles. But, although out of their latitude in Fife, yet when we consider that the Ochils and Sidlaw mountains, with the Grampians towering up beyond, are easily seen from Drumcarrow Craig, and calculating the great distance the golden eagle could fly—about a hundred miles in an hour—(the peregrine falcon can fly one hundred and fifty miles an hour), there is nothing improbable, or even singular, in his being seen soaring above our lowland Fifeshire. He might be with us the one hour, the next hovering above the peaks of Ben Ledi or Benvenue, or sweeping down the glens of Braemar; although, as a rule, the golden eagle seldom strays far from his native haunts—unlike the white-tailed sea eagle, which is of a more roving disposition. As the two solitary vultures already noted are set down as O.V. in the British birds, so have I set down these three golden eagles as O.V. in my list of St Andrews birds. Although the name golden is not altogether appropriate, as already remarked, still, his dark brown body may be said to be bound with gold—from the pale yellow cere and dark yellow iris which encircles his fiery and piercing eyeball, down to the golden hue which peers through the feathers that clothe his powerful tarsus to the feet; the toes also, to their very extremity, where they join the long black retractile claws, are rich yellow. The elongated orange-coloured feathers on the head and neck of this striking, bold-looking bird, also fringed with deep yellow, gives him a noble if not altogether a golden appearance.

> "Yet looks he like a king; behold his eye
> As bright as in the eagle's, lightens forth
> Controlling majesty."—*Richard II.*

While his powerful wings, alert and fearless demeanour, give him all the proud look which indicates strength and daring, and entitles him not only to the stamp but the golden rank of being king of the feathered tribe—at least on the same principle that the lion is said to be the king of the forest—not on account of his size, intelligence, or usefulness, but for that half mesmeric, unlovable power of being able to strike down others, and a nameless feeling in man to associate greatness with the power to kill—no matter whether it be a golden eagle, a lion, a Cæsar, an Alexander, or a Bonaparte. As Shakespeare says in "Cymbeline"—

"Last night the very gods shew'd me a vision,
I saw Jove's bird, the Roman eagle, wing'd
From the spongy south to this part of the west,
Then vanish'd in the sunbeams; which portend
(Unless my sins abuse my divination)
Success to the Roman host."

He also says in the same Play—

"The Roman eagle,
From south to west, on wing soaring aloft
Lessened herself, and, in the beams o' the sun
So vanish'd; which foreshow'd our princely eagle,
The imperial Cæsar, should again unite
His favour with the radiant Cymbeline,
Which shines here in the west."

To illustrate this still more, Byron, speaking of Waterloo, says—

"And Harold stands upon this place of skulls,
The grave of France, the deadly Waterloo!
How, in an hour, the power which gave annuls
Its gifts, transferring fame as fleeting too;
In pride of place here last the eagle flew,
Then tore, with bloody talon, the rent plain!
Pierced by the shaft of banded nations through."

But, although a life-ravaging marauder, he is not a cruel one—in the same sense that the cat is cruel—which, after catching the wee timorous mousie will let it away again and again, for no other purpose than to gratify her savage sport, until the little sufferer, so tortured by claws and teeth, only dies when its tormentor is tired of her cruel pastime. On the contrary, the golden eagle kills at once, and never gloats over death nor destroys more life than necessary to appease his own or his offspring's wants. Fierce, active, and daring in the execution of his royal mission, his conscience is free and light as the mountain air through which he cleaves—he gets his license and commission to kill direct from Nature; but, unlike Cain, he is a murderer from the beginning—as free from envy as from the qualms of conscience. Conscience, which makes cowards of all men, makes no coward of him. By the special order of Nature, mercy and pity, like cruelty and envy, have no place in his disposition. There is no humbug—no Macbeth-like fear or Hamlet-like hesitation with him in murder; like the ancient human Gael, lawless to all but his own clan,

"For why?—because the good old rule
Sufficeth them, the simple plan
That they should take who have the power,
And they should keep who can."

So boldly typified by the red gregarach, Rob Roy, the outlawed robber of Glengyle; like Rob, the golden eagle feels himself proscribed by all but Nature and freedom. He disdains the cat-like inclination to kill for killing's sake; he needs sustenance; he cannot pick grain nor feed on grass; he craves for life; he knows he has the power, and he takes it without any qualm of conscience wherever and whenever he can. Tennyson draws a true picture when he says—

"He clasps the crag with crooked hands:
Close to the sun in lonely lands,
Ringed with the azure world he stands.
The wrinkled sea beneath him crawls.
He watches from his mountain walls,
And like a thunderbolt he falls."

Or, as Burns says, on scaring some water-fowl in Loch Turrit—

"The eagle, from the cliffy brow,
Marking you his prey below,
In his breast no pity dwells,
Strong necessity compels."

He goes about armed for murder—'tis life he seeks. Nature has given him the arms to take it, and whenever he gets the chance, and needs it, the quickest mode is his—one blow on the back of the head, another at the heart, and the deed is done. For, his long needle-pointed claws encircle and squeeze like a living vice in mercy to the bird within their grasp; for wise Nature has so powerfully, yet so mercifully, gifted him to take speedily the life he seeks. In his beautiful poem of "Venus and Adonis," Shakespeare draws a fine simile of the amorous goddess kissing the young god of love, and a hungry eagle tearing its prey—

"Even as an empty eagle, sharp by fast,
Tires with her beak on feathers, flesh, and bone,
Shaking her wings, devouring all in haste,
Till either gorge be stuffed or prey be gone,
  Even so she kiss'd his brow, his cheek, his chin,
  And where she ends she doth anew begin."

But, although he disdains to feed on what he does not kill, unless pressed by hunger, he or she has been often shot on carcases placed near a covered pit where the gunner lay concealed. And, as another proof that they sometimes feed on carrion, no less than nine have been seen at one time feeding on the carcase of a horse in the Highlands—not a hundred yards distant from the house from which they were seen; but such a sight may never be seen again in Scotland, for they can scarcely exist now in their native haunts—driven away, like the crofters, and almost extirpated by the rifled tubes of man. Each rocky craig and eulah will soon be an empty throne. The white-tailed sea eagle will likely be the last to disappear from our sea-girt isles—

"More pity that the eagle should be mew'd
While kites and buzzards prey at liberty;"

an apt expression, which Shakespeare makes Hastings say to the bloody-minded human kite, Glo'ster, who had got his brother Clarence immured in prison. Although well adapted for the purpose, his strong hooked bill is seldom used to kill, his sharp talons being sufficient to pierce the heart or brain and steal away the life. Yet a better pair of natural scissors or forceps than his two mandibles for cutting, skinning, or plucking, cannot be found. His eye also, like his talons, beak, and wings, is of the highest state of perfection. When almost lost to sight in the air he can detect a grouse amongst the heather, and swoop down from the vast height like a thunderbolt and squeeze it to death without the chance of escape; and, just before touching the earth in his headlong plunge, has the wonderful power of arresting his fall at the proper moment, saving himself by his outstretched wings and tail. It is when soaring at a great altitude that he searches for his prey—a proof that scent with him has no part in the selection, whatever it may have with the vulture; but they often fly low over the surface, just as buzzards, harriers, and sparrow-hawks do. Their prey consists of fawns, lambs, hares, rabbits, black and red grouse, ptarmigans, curlews, plovers, &c.; but barnyard fowls, pigs, and even young children have been carried off by this ruthless and indiscriminate plunderer. A proof that

"Dangers, eagle-pinion'd, bold,
Soar around each cliffy hold;
While cheerful peace, with linnet song,
Chants the lowly dells among."

A shepherd in the Hebrides saw two golden eagles attack a full-sized doe so fiercely, in the winter time, that had he not interfered they would have killed her, and, to corroborate this, the *Jedburgh Advertiser*, of date 13th December 1884, states—

"A few days ago a singular struggle was witnessed on the lower portion of Corrie-Mor, at a short distance from Glassburn House, between a large and powerful eagle and a finely antlered stag. The king of birds was watched for some time hovering above a herd of deer, which seemed to have particular attractions for him. The noble bird was slowly descending, as he majestically sailed around in his ærial circles, getting by degrees nearer to his coveted quarry. At last, reaching striking distance, he suddenly came to a halt in mid-air, and, poising himself on outspread wings, he seemed for a few seconds perfectly motionless. Then, like a bullet from a rifle, he swooped down, and in an instant his powerful talons were firmly fixed in the back of a fine large stag. The monarch of the glen plunged about in the wildest possible manner, evidently in great terror and pain, the eagle holding grimly on, belabouring the stag's sides all the while with heavy blows from his powerful wings, and, when opportunity offered, making desperate darts with his beak at the eyes of the frightened stag. By this time the poor stag's brown sides were red and gory, and, notwithstanding his frantic efforts, he could not disengage himself from his strong and cruel foe. At last, seeming to discover that his antlers could reach his savage enemy, he began raking fore and aft with them in the most vigorous manner, until he managed to send the eagle sprawling in the heather. The stag had gallantly freed himself, but he had not bounded far when his fierce assailant, recovering from his discomfiture, was again on the wing in full chase, and in a few seconds down he came again and firmly fixed his powerful claws in the deer's haunches, so far back as to be out of the reach of his antlers. At this juncture, as if in despair, the stag commenced to tumble about, throwing himself on the ground and rolling over down hill; but still the eagle seemed incapable of letting go its tenacious grip. The stag then put his head down between his forelegs, throwing himself clean over—heels over head—several times. It was indeed a wild, a wonderful, and a most unusual sight. The stag's efforts were at last successful, and, after getting clear of his murderous enemy, he galloped off. The eagle was, however, speedily up again and in full chase; but his intended victim made his escape sure by rushing full speed down the hill and into the Glassburn woods."

I have given this singular struggle in full, as it is the best description of such a large quadruped being attacked by an eagle I have read or seen described by an eye-witness, and can be relied on; and, as showing the characteristic mode of attack and determination of the eagle, is worthy of record. In his "Excursion," Wordsworth gives a fine trait of the spirit of a young peasant hero's respect for the king of birds—

"With admiration would he lift his eyes
To the wide-ruling eagle, and his hand
Was loth to assault the majesty he loved;
Else had the strongest fastnesses proved weak
To guard the royal brood. . . . for all

. . . .

Were subject to young Oswald's steady aim,
And lived by his forbearance."

And we all know the patriot Tell's forbearance, when, with his bow in his hand, he turned away when the eagle was soaring overhead—

"And could not shoot,—'twas Liberty."

Nor can we forget the grand idea of Byron's tribute to Kirke Whyte when the wounded eagle saw that it was a feather from his own pinion that had sped the arrow to his heart. It was *that* which caused the deepest wound—

"'Twas thine own genius gave the final blow,
And help'd to plant the wound that laid thee low.

> So the struck eagle, stretch'd upon the plain,
> No more through rolling clouds to soar again,
> View'd his own feather on the fatal dart,
> And wing'd the shaft that quiver'd in his heart.
> Keen were his pangs, but keener far to feel
> He nursed the pinion which impelled the steel;
> While the same plumage that had warmed his nest
> Drank the last life-drop of his bleeding breast."

There is a tradition in the north of Scotland of an eagle having taken up a child from behind some reapers, in the parish of Ophir, and carried it to her nest in Hoy; but by the assiduity of the people who saw it and immediately followed her, the child was rescued—only partially injured, and recovered. And in the island of Harris a similar tradition is told of a golden eagle having carried a child across the Minch to the island of Skye—a distance of over sixteen miles.

Some time ago when a clergyman was walking, with his gun, in the Highlands, he saw an eagle making off with a pretty large pig in her talons, which she dropped when fired at. Sometimes the eagle catches a Tartar, and the biter gets bit, as the following authentic account of an encounter between one and a polecat, in the forest of Glenavon, Banffshire, proves:—

> "One of the keepers of the forest, being one day reclining on the side of a hill, saw an eagle hovering about, and darting suddenly down clutched a polecat, with which it rose up and flew away in the direction of a high cliff on the opposite hill. It had not gone far when he observed it descending in a spiral direction until it reached the ground. Led by curiosity he went to the spot—about a mile distant—and found the eagle quite dead, with its talons transfixed in the polecat. The polecat was also dead, with its teeth firmly fixed in the eagle's gullet."

I can corroborate this by the death of kestrel falcons and a heron by weasels, in a similar manner. In 1879 I got the following interesting and authentic account of a young man meeting his death by a wounded eagle pulling the trigger of his gun:—In April 1852 the young fawns were being killed by a pair of golden eagles, at Rhendorrach, near Ullapool, Ross-shire. The son of the forester, Mr M'Lean, a lad about eighteen years old, who knew where their eyrie was—high up in an inaccessible cliff—was determined to put a stop to the systematic thinning of the fawns. He got up very early one morning and went to the place with his double-barrelled gun. After waiting under cover he shot at one of the eagles and broke its wing—it fell, then immediately lay on its back, raised its claws, and, like a feathered Fitz James (who planted his back against a rock when opposed to Rhoderick Dhu and all his clan), was determined to sell its life dearly. No doubt if it could have spoken it would have said "This earth shall fly from its firm base as soon as I." Be that as it may, the lad planted the butt end of his gun down on the bird, trying to take it alive, but in the struggle the eagle grasped the trigger of the other barrel and the shot went through his brain, killing him on the spot. He was found quite dead a few hours after, by his elder brother, who had come out to seek for him. The eagle was got close beside the body. It was killed, taken to Inverness and stuffed. The man who told me was living at Ullapool at the time, and knew both the lad and his father, and was all but an eye-witness to the fact.

I read in the *Scotsman* that a large golden eagle had been shot, with its leg firmly fixed in a large stamp. It was seen for several days flying about in the Highlands with the stamp hanging from its leg. It was a female, measuring 8 feet across.

In the Braemar news of a district newspaper there lately appeared the following:—

> "Extraordinary Exploit of an Eagle.—Last week Mr Abercrombie, gamekeeper, Invercauld Forest, having set three strong traps chained together (weighing in all 24 lbs.) for the purpose of catching foxes, was surprised next day to find that all his snaring tackle had disappeared. If a fox had been trapped, some traces must have remained. This led him to examine minutely the ground, but nothing could be seen. Puzzled, but bent on making a thorough search over the hill, he got three young men and returned to search, when, by chance, the missing property was found at the top of a beetling crag, nearly a mile up the hill, firmly imbedded in the soil, as if they had dropped from a great height. In this position they still remain, it being found impracticable to remove them owing to the frost. One of the traps contained the claw and part of an eagle's foot, two inches long. An eagle, which was seen in the neighbourhood some days previous, had been caught in the fox-trap, procuring its liberty by the loss of its talons."

When the weight of the traps is considered, besides their being fixed in the ground, it is marvellous how the bird was able to wrench them away and fly with them to so great a height, which shows the great power of the golden eagle, and makes it no marvel that it should attack even the stag.

In the *Evening Telegraph* of April 15th, 1884, I saw that a golden eagle was shot near Kirriemuir, by Mr Robbie, farmer, Gella Wateresk, when watching some ewes and lambs. He saw it hovering about where the lambs were. He ran for his gun. On returning he found it still hovering. Getting a favourable opportunity he brought it down with the first shot. It measured 7 feet across the wings, and 33 inches from tip of beak to end of tail. It was stuffed by Mr M'Kenzie, bird-stuffer, Dundee. Lambs had been missed off several farms in the glen a week or two before.

On the 23rd of the same month another splendid specimen—also a female, measuring 7 feet across the wings—was shot by Mr Cox, gamekeeper, on the high parts of Dalnabrick hills. Another seen hovering about was supposed to be the male. From these recent snatches of its history, it might be thought that the golden eagle is not so rare after all in Scotland; but these examples only prove how much it is hunted and shot down.

In 1879 a dead eagle was found in Greece, with an arrow a foot long fixed in the flesh under the wing. The arrow was of African construction. So the wounded eagle had flown all the way from Africa—across the Mediterranean—with the arrow in its body. But, as already said, the eagle is noted for its speed and sustained power of flight, which is necessary for its marauding mission. Yet, for swiftness and sustained effort it is not to be compared to the little sand-martin, swallow, or swift, or even the little swallow-tailed hovering tern; but for altitude—unless it be the condor of the Andes, and other vultures—no bird penetrates the clouds higher than the golden eagle—so well shown in the fable of the wren, which, in the competition for pre-eminence in flight, alighted unnoticed on the eagle's back, and, waiting till the king of birds had reached his highest point, flew still higher, and claimed the prize before descending to its lowly shrubbery—a good illustration of but too many money-grubs, who craftily raise themselves up to success on the backs of others.

Shakespeare not inaptly says in "Titus Andronicus":—

"Is the sun dimm'd that gnats fly in it?
The eagle suffers little birds to sing,
And is not careful what they mean thereby,
Knowing that, with the shadow of his wings,
He can at pleasure stint their melody."

Domestic fowls are aware of the presence of an eagle soaring two thousand feet above them; and "Coriolanus" gives a fine illustration of the dread birds have of the eagle, thus—

"Cut me to pieces, Volsces; men and lads,
Stain all your edges on me. Boy! False hound!
If you have writ your annals true, 'tis there
That, *like an eagle in a dove-cot*, I
Flutter'd your Volscians in Coriolli;
Alone I did it—Boy!"

And though Burns truly says—

"The eagle's gaze alone surveys
The sun's meridian splendour,"

Shakespeare says, in "Love's Labour Lost,"

> "A lover's eye will *gaze an eagle blind,*"

And that

> "Gold is of power to make *an eagle's speed.*"

Nest, Eggs, and Young.

They make their nest in March, or early in April, being, like most of the tribe, early breeders. They often return to the same eyrie for many successive years, if they do not fall victims to their common enemies, the gun or stamp of man. The nest is large, five or six feet across at the base, and composed of sticks and heather, with sometimes freshly-broken sprigs of Scotch or larch fir. The lining is of grass, moss, fern, and other vegetable materials nearest—indeed, birds generally select the materials readiest—at hand; but there is invariably a large proportion of *luzula sylvatica*, green outside, but soon dried inside by the heat of the bird. The whole fabric, though apparently loose, is very firm; some of the understicks are an inch in diameter. It is wide and flat, something like a heron's, but much larger, with a well-formed hollow in the centre about 14 inches in diameter and 4 inches deep. In Shetland, where sticks are scarce and sea tangles plentiful, the long tangles are taken to form the base, which when dried are even better than sticks, being more pliable. The eggs are laid at intervals of several days, and are generally two in number, sometimes three, sometimes one, so that the first egg is hatched before the second. When destruction has found out their eyrie, the female is always shot first. The male then takes her place on the nest for several days, until he gets tired, and seeks another mate, in which, considering their scarcity, he wonderfully soon succeeds, possibly from Norway, unless he, too, falls a victim at the doomed spot. But I know of no instance where the male has brought out the eggs or reared the young by himself. The eggs are hatched at the end of April, and then the forays of the old birds become formidable. They are at first covered with grey down, but Mr Wolley took three from one nest; and Mr Lelmon, in his bird-nesting account of Orkney, got a nest with three young ones in it. The eggs are beautifully coloured—a variegated pale and dark purple ground, veined and blotched with red-brown, with streaks of black and yellow. The two before me are $3\frac{1}{8}$ and 3 inches long by $2\frac{3}{4}$ inches diameter in the centre.

The golden eagle does not always allow her nest to be plundered with impunity, but often attacks those engaged in the spoliation, and sometimes successfully. In Sutherlandshire two young men had a narrow escape from being trundled down a precipice when carrying off the young, by the return of one of the old birds, who dashed at them; but they stuck to their prize and reached safety. And in Forfarshire a farmer, in ascending to an eagle's nest, was attacked by one of the old birds, and only escaped from his perilous position by throwing his bonnet to her, after which she flew to the ground, and having his gun, he had just time to shoot her as she was returning.

The nest is generally on a high cliff in some solitary spot, sometimes in the highest fork of a tree springing from the mountain side, but oftener in a rocky ledge, hidden from above, and almost unapproachable from below. But it is often found quite exposed and easy of access, the solitude of the locality being more the motive of selection than a mere desire to hide it or place it beyond human reach—sometimes even lying on a grassy ledge on the brae, as much exposed and approachable as the eggs of the common tern which lie on the barren moor or sandy flat. Those who picture the eyrie of the king of birds as placed invariably beyond the reach of man, in some inaccessible precipice, or in some dark ravine high up in the mountain's brow—associating in their mind's eye the very name of eagle with the cloud-capped tops of inaccessible mountains—will have their dreams dispelled, like the mist on the brae, by the sun of simple truth, for both the golden eagle and his congener, the white-tailed sea eagle, of almost equal size, sometimes make their nest upon the ground. In the Orkneys an old woman came on a nest so placed, and walked home with the eggs in her apron. Mr Wolley, the best authority I know regarding the nest and eggs of the golden or mountain eagle, says he "has carefully examined eight or nine distinct eyries in Scotland, and visited the sites of many more. They have always been in mountainous districts, but only in one instance at any considerable elevation, and even there it was in a little cave or cell which seemed to offer advantages too great to be neglected. In every case they have been upon a ledge or step, with rock rising close behind them, and often overhanging the nest so as to shelter it." He says—"A man upon whose word I can rely offered to show me an old nest placed upon the ground at the foot of a rock rising out of a hillside, and near it, *also upon the ground*, the nest of a previous year. Generally there is both soil and vegetation where the nest is placed, with not unfrequently a small tree growing in front of it. In many it is not more than twelve or twenty feet above the ground, and a man can easily climb to it. There is often a great precipice below and very little rock above the nest." One was so close to the top that he climbed easily in and out from the level ground above. Near this, in the same ravine, there were three nests of other years, all accessible from below without the aid of ropes. It is common for eagles to have several places in different quarters, and they frequently repair two or three nests before choosing in which to lay their eggs. The same bird will select very different situations. A pair alternated between a crag quite inaccessible and a corner into which a child might climb. But besides this change of quarters the exact site is often altered from year to year, so that three or four nests of different ages may be seen within a few yards of each other. He once saw a newly-repaired one besides the one occupied. Yet some favourite eyries are used for ten, twelve, or more years in succession. Eagles are not gregarious; they require too wide a field for themselves. Hence eaglets are expelled by their parents when able to look after themselves. In this apparent harshness the old birds yield obedience to a wise and beneficent natural law, for no glen could supply the wants of a family of full-grown eagles—an example which might be followed by human parents, especially the crofters in some of our Highland districts.

Old Highlanders say there are rocks which have scarcely been without eagles' nests in the memory of man. It is evident that they are influenced more by the seclusion than the inaccessibility of the spot they select. They do not care for foxes, which often make their earths so as to be conveniently near the well-known larder. A more likely rock for an eyrie is a subdivided one, with grassy ledges and sheltered corners, than one with a great perpendicular face; although the two eggs which Mr Hewitson selected for his "Coloured Illustrations" were taken from an eyrie in a narrow crag several hundred feet in height, where there was scarcely room to hold the nest. Mr Wolley also knew of two or three similarly placed—all of which only show that birds, like men, are not uniform in their tastes.

But I know of no instance of a golden eagle building its nest on a tree or on a sea cliff; although the sea eagle often selects a tree by the side of a loch, and breeds on inland rocks.

PROGRESS TOWARDS MATURITY.

At one time the golden eagle had a twofold individuality, arising from the difference of the plumage in its progress to maturity, chiefly owing to the white ring on the tail of the immature bird, in which state it was called *Falco Fulvus* or ring-tailed eagle, in distinction to *Falco Chrysaëtos*, considered two distinct species. And for long it was a matter of dispute—the identity of the two—until Mr Selby and Sir William Jardine cleared up the question by each having kept the eagles for the *four* years which constitutes the time it takes for the bird assuming its perfect adult plumage. During the first year the white ring is well defined, occupying the larger and upper half of the tail, but every subsequent moult lessens the white ring. The line between the white and the dark brown of the lower half of the tail becomes interrupted by patches of hare-brown until the fourth year, when the whole tail becomes barred with *hare* and *dark* brown, as in the adult bird, when no further change takes place; which is exactly the opposite of the white-tailed or sea eagle, the white of whose tail at each moulting becomes broader from the upper half, until the whole tail is white in the adult, as the whole tail of the golden eagle is brown, except the roots of the feathers (which are white). In the one case the brown invades the white towards the root of the tail till all is brown; in the other, the white invades the brown towards the end of the tail until all is white—the one pushing away the white *upwards*, the other pushing away the brown *downwards*. In other respects the difference between the immature and adult bird is trifling, and in all points—such as the size and form of the bill, talons, number of scales on the feet, &c.—they are the same. Indeed, according to some ornithologists both the immature and the adult birds breed, which may be perfectly true—as a lad may have a wife without having his matured beard as a man. In this alteration of feathers year by year, it is marvellous in Nature thus to paint so correctly and so perfectly each particular feather of each particular bird of each particular moult to such exact similarity and likeness. After having had two golden eagles for several years, Selby says:—"After close attention they seemed untameable, their fierceness being in no respect diminished since he first received them. They showed no partiality for the person who fed them; were as ready to strike him as a stranger." This may be true of eagles kept in confinement; but if taken young and allowed their freedom, they will, like the falcon, show a preference for the hand that feeds them—at least, I had a tame peregrine falcon which knew me from the tower of St Regulus, and alighted on my shoulder; and before me lies "The Story of an Eagle," from the *Spectator*:—

> "A full-grown eagle, which had got an injury, was fed by the gardener at an old Castle in the west, once the home of the chiefs of a Highland Clan for perhaps as long as the cliff of which it almost forms a part has been the eyrie of the sea eagles. When cured and released, it returned to be fed, and grew so familiar as to enter the house. The dining-room, as in many Scotch houses, was at the top of the Castle, with several windows looking out over the Atlantic. Breakfast was laid, the guests in the room, when an open window was suddenly darkened, and the eagle flew in from the sea, and alighted on the sill. It then flapped on to the table, and after looking at the guests standing in the room, it made its way down the table and swallowed the butter, which was set at intervals down the board. For two years the eagle lived about the Castle; but its visits to the farmyards were not less frequent, and though '*indemnity*' for these outrages was freely paid, it is feared that the eagle's disappearance was due to the reprisal from an injured flockowner. There is good reason to believe that the golden eagle, which at one time seemed destined to extermination, is rapidly increasing in numbers."—*Nov.* 29*th*, 1891.

Selby's eagle "showed a preference for living prey, and would not eat offal or carrion except pressed by hunger. Hares, rabbits, and cats were favourite food. Living prey thrown to them were instantly pounced on by a stroke behind the head and another near the heart, the bill never being used but for tearing up their prey when dead. Part of the fur was swallowed, and afterwards disgorged from the mouth. They displayed adroitness in skinning animals, and birds were plucked with great dexterity. They rarely drank, but were partial to washing themselves. The female was very noisy in spring, and clamorous before wet or stormy weather. A pair were kept at Mar Lodge, Aberdeenshire. For three successive years the female laid eggs similar in size and colour to those in a wild state. Before laying she became restless and noisy, and tried to form a nest of loose materials thrown into the cage. An anxious desire to incubate was also shown, but no experiments were made as to her hatching." But if you would see this magnificent bird in its native grandeur, you must retire to the rude rocks and rugged mountains. Yet, even there, like the human Gael, this fierce but noble native of Scotland has been all but exterminated by the wholesale sheep farms and extensive deer forests of modern cockneydom. It is now very uncommon to hear of a golden eagle south of the Border, or even in the Lowlands of Scotland. As already said, during a period of fifty years I know of only three having been seen in Fifeshire. Some years ago about twenty annually found their way to the bird-stuffers in Scotland for glass-eyed ornaments. There are not so many now. And it is questionable if the destruction of the birds of prey has added to the number and quality of the birds of sport. It seems to be the rule, the fewer the birds of prey the more inferior the birds of sport, as their mission seems to be, by the law of unerring Nature, to act as the wise balance in thinning down the *weaker* birds, which are less able to escape, thus leaving the propagation of species to the stronger and more robust, for it has been noted of late years that, owing to the excessive destruction of the birds of prey, a marked deterioration of the breed of grouse was so visible as almost to demand the restoration of the natural balancers of life.

The western boundary of Foula, one of the Shetland Islands, is a favourite resort of the golden eagle. In Norway they enjoy uninterrupted sway, and can choose their nesting-places undisturbed amongst the magnificent rocks which bound its fjords. They can often be seen perched upon the centre of some lonely island, where they remain motionless for hours. Its motion at first is slow, heavy, like a heron's, till, rising high in air, it assumes its own majestic flight. Although it has been so seldom seen in Fife, I could not resist the temptation of describing thus fully the recognised king, or rather queen, of the feathered race once so plentiful in ancient Caledonia, reminding me of the words of Major Galbraith, who was sent to hunt down Rob Roy :—

"For while Rob Roy was free to rove
  In summer's heat and winter's snow;
The eagle, he was lord above,
  And bold Rob Roy was lord below."

Let us, in imagination, start with him, pen in hand, like the wren, upon his back, from his (or her) eyrie, on a marauding excursion for food for the young, high up on some lofty crag. Before setting out there, see him, with head stretched forward leaning to the sky, his fierce and callous eye piercing distance for miles, as it is said to pierce the sun; the tip of his tail pressed hard against the rock on which he stands; his muscular shoulders raised, he gives one bound, then away he sweeps on his "holy" mission of murder, like the split eagles of Russia, striking down the weak until the strongest reigns, and what is called the civilisation of humanity is complete. But woe to the weak-winged ptarmigan or grouse, wounded hare or innocent lamb, that comes within the swoop of those merciless talons! like the defenceless Turk at Ismail or Plevna, or the Pole at Praga; for again is the ear of mercy closed and the eye of pity shut, and, for the time being, is Providence asleep. Let us go with him, passing hill after hill, glen after glen, till, sweeping round a jutting crag, from whose brow a stunted oak tree springs, on which a pair of ravens have taken up their kindred abode. Suddenly, with the harsh croak—between the grunt of a boar and the song of a frog—so peculiar to this dark denizen of solitude, they both rush after his feathered majesty, wheeling and diving—now above, now below—as if to drive him away from their rocky domain, disputing his right even to be there, instinctively, by kindred feeling, well knowing his plundering mission, and thus presume to let him know they know it. He as instinctively shuns them, knowing that they, too, are robbers, like himself, by nature, and tries to get out of their way. He jerks and dives, and, with a proud but clumsy grace, escapes from their petty persecution—like a bull from a gadfly, or a boy from a wasp—not that he is afraid, but he is bent on his one selfish object—plunder of life, and he has no time to waste with them, for theirs is not what he seeks, knowing that "corbies winna pick oot corbies' een." They still persist in their mimic attack, until at last he feels annoyed, soars several yards above them, turns right round as if about to swoop down upon the nearest. This was the climax waited for, so they suddenly wheel, croaking away as if in triumph that they had thus successfully driven the king of murder away, and calmly, with a discordant croak of satisfaction, return to the gnarled stronghold of their own domain. While he kept on his mission of death, sweeping down the slope of the mountain side, he paused, with the embryo hover of the kestrel—a plover in the heath below had caught his piercing eye. So had the all but fated quarry his, for just as he fell like a thunderbolt to earth, the plover, quick as lightning or a young partridge, sidled off, and took shelter beneath the roots of a thick clump of heather, eluding his intended clutch, but not until his outstretched wings and tail had pressed the heath—his usual mode of saving himself from a rapid swoop. He rose and again sped on. He veered, then down the glen he sped—a sickly lamb had caught his eye; but the barking of the shepherd's faithful collie, and the burly, plaided figure of the shepherd himself striding round a corrie, warned him that stronger powers than his stretched out protection there. He owned the *might* but not the *right*, and swept up the glen, over the mountain's brow, and sailing down the other slope again, he stopped, but only for a second, then on again. Suddenly, another momentary pause; but this time his meditated *purpose* was turned into *action*, as the powder's flash at the touch of fire, putting in practice the rueful soliloquy of Macbeth at the escape of Macduff, that

> "The flighty *purpose* never is o'ertook
> Unless the *deed* go with it;"

for down like a living thunderbolt again he sped, but this time clutched his prey—a ptarmigan—crushing its breast and squeezing it to death. With a short "cluck" of triumph he again mounted his ærial car and homeward bent his flight; but as if to prove that there is opposition in everything, even in death, he had not flown far when, sweeping up a deep ravine, a pair of well-armed active peregrine falcons barred his way, disputing his royal authority to plunder on territory they deemed their own. The only sign he gave of disputed right was clutching the dead ptarmigan still harder with his talons, redoubling his speed in grim defiance, as he had still one of his arms free and bare. After screeching and screaming, wheeling, darting, and soaring—above, below, around—on their still more rapid pinions, they annoyed him much more than the loquacious ravens. Once or twice he seemed on the point of relinquishing his prey and defending himself in earnest, but they seemed to be aware of the unequal strife if it came to close quarters, and, satisfied at having shown the reputed king of birds their marked superiority in ærial evolutions, they triumphantly withdrew, after chasing him away, and settled on their own grim ledge of rock. On their quitting him, he, too, with a shrill scream of kindred satisfaction, sped on, and after cleaving through space for about fifty miles, was back beside his nest in less than twenty minutes. But the flight of birds, like the rapid quivering of humming bird or bee, cannot be computed by miles. They speed so fast and far, time alone, not distance, is all that we can say. When near home he met his mate with a sickly lamb in her talons, and as they met, the "deil micht hae kent they had business in hand," the glen resounded so loud with their fierce triumphant greeting—a sound but too well known to the watchful shepherd below. They alighted simultaneously on the rocky ledge of their abode—the eaglets taking up the well-known chorus, clamouring for food. The female, first tearing off a portion of the wool and skin with her scissor-like beak, fed them piecemeal, while her mate was coolly but as savagely tearing off the head and feathers and digging into the tempting flesh of the ptarmigan. After gorging themselves and their young, the same plundering expedition was again gone through—their one sole end and aim, to live—fulfilling Nature's law, until perhaps the hidden stamp, or baited trap, or leaden messenger of death—on the same inexorable principle, the strong against the weak—puts an end to their rapacity. Otherwise the golden eagle is said to live to a great age, even to a hundred years. The ancient Romans used to let an eagle fly from the funeral pyre of a deceased Emperor. Dryden alludes to this custom in his stanzas on Oliver Cromwell after his funeral:—

"Officious haste
Did let too soon the sacred eagle fly."

In Heraldry, the eagle signifies fortitude; and for several centuries it has been a favourite device on Royal banners. It was the ensign of the ancient Kings of Babylon and Persia. The Romans adopted it and other devices; but Marius made it the ensign of the Legion, and used the other devices for the cohorts. France under the Empire had the eagle for its national device. The two-headed eagle, as a device, was first used by Constantine the Great, and signifies a double Empire, hence Constantinople. There is a very ancient superstition that every ten years the eagle soars into a "fiery region," and plunges thence into the sea, where, moulting its feathers, it acquires new life, like the phœnix from the fire. Spenser alludes to this in "The Færie Queen":—

"As eagle fresh out of the ocean wave,
Where he hath left his plumes all hoary grey,
And decks himself with feathers youthful gay."

We also read in the Psalms, "Thy youth is renewed like the eagle's." The eagle is the supporter of the lectern in churches, because it is the natural enemy of the serpent—that fabulous author of sin; and it is also emblematic of St John, because, like the eagle, he looked on "The Son of Glory." But ancient superstition fancied anything, no matter how supernatural. And doubtless "Holy Russia," with her two-headed eagle, thinks she, too, has a sacred mission to fulfil, like eagle-mounted Jupiter in "Cymbeline," who said—"Mount, eagle, to my palace crystalline,"

> "He came in thunder; his celestial breath
> Was sulphurous to smell;—*the holy eagle*
> Stoop'd, as to foot us; his ascension is
> More sweet than our bless'd fields; his royal bird
> Prunes the immortal wing, and cloys his beak
> As when his god is pleased."

The idea has always been held that the eagle alone of all creatures has eyes which can withstand the full blaze of the sun at noonday. Milton, in his great prose work, "Areopagitica," eloquently alludes to this:—"Methinks I see in my mind a noble and puissant nation rousing herself like a strong man after sleep and shaking her invincible locks. Methinks I see her as an eagle renewing her mighty youth and kindling her undazzled eyes at the full mid-day beam." The terms golden eagle and spread eagle are commemorative of the Crusaders; they were the devices of the Emperors of the East.

THE CINEREOUS OR WHITE-TAILED SEA EAGLE.

(Haliœtus Albicilla.) Mihi. (Vultur Albicilla.) Linn.

Provincial—THE ERNE OR WHITE-TAILED EAGLE.

"The world is grown so bad
That wrens may prey where eagles dare not perch."—*Richard III.*

Until lately the cinereous and white-tailed sea eagles were considered two distinct species, like the ring-tailed and golden eagle, from that old source of error, the difference of plumage of the immature and the adult bird, the tail in both being the confounding cause. We may safely say it takes five or six years before the white-tailed eagle assumes the mature plumage from which it takes its name, as Mr Wolley (a painstaking naturalist) took two young ones from their nest and carefully watched them for five years, noting each year their change of plumage. He says—"In 1848 I took two full-fledged eaglets from their nest on a ledge of perpendicular sea-cliff, which now, in 1853, nearly five years old, have not yet completed their adult plumage, though kept in a most congenial situation amongst the Derbyshire rocks." Mr Selby, as already stated, kept a golden eagle, which completed its adult plumage in four years.

The sea eagle is more numerous than the golden or mountain eagle, and is found in all the northern and mountainous maritime districts of Scotland and Ireland, and in the Orkney and Shetland Isles. It is also of a more roving disposition, and has frequently been killed in England. It usually selects for its retreat some lofty precipice overhanging the sea, where it forms its nest, and, unless killed, remains attached for many years, but drives away the young to find a habitation for themselves. For this reason most of the wandering individuals that have been shot at great distances from the breeding-places have been young or immature birds. The old pair remain together, and generally search for food in company.

The only instance I know of the sea eagle being found near St Andrews was a very fine female, in its immature plumage, shot at Kinkell, close to the sea, about half a mile from the city, on the 29th December 1866. It was in splendid condition, weighing 17 lbs., and measured 8 feet 4 inches from tip to tip of wings, and 3 feet 3½ inches from beak to end of tail; it was shot by a joiner in my employment. When first seen it was sitting on a rock close to the sea; it rose, winding up in circles for about a hundred yards, then flew landwards over the brae, but soon returned to the sea as if dissatisfied with the uncongenial look of the land without hill or precipice. It was shot when about ninety feet up. The weather had been very stormy for two days before—the wind N.E.—so it might have come or been driven from Norway. When shot it was leisurely skimming over the brae—slowly flapping its wings like a heron; it again flew down to the rocks, then back to the brae, when he fired; there was only one pellet of No. 4 through its nostril into the brain, which stupefied it. It was kept alive for two days, and gave proof of great muscular power before it was killed, which was accomplished by being pressed to death by the bird-stuffer to save its plumage, which reminds me of Paine's telling remark in his "Rights of Man," when replying to Burke's sentimentalism in his "Reflections on the Revolution in France:"—"He pities the plumage, and forgets the dying bird," like this callous bird-stuffer; for it took four people to kill it—one held its head muffled with cloth, another the feet, which were tied together and also muffled for fear of its talons, and one at each wing, while one of them had his knees on its heart.

They had ultimately to bind its body and wings with a leather strap, tightly buckled (as is done on the stage with its human counterpart, Rob Roy), then placed on its back and literally squeezed to death—its convulsions actually lifting up the knees of the heavy man whose whole force was used in crushing it down before its heart was broken. It is a common way of killing small birds for stuffing by squeezing the heart, but I never knew of a powerful eagle being killed in this way. Before being stuffed it was publicly exhibited in the Town Hall as a great rarity—at sixpence each, and being a very fine specimen, many went to see it, so the bird-stuffer made a good profit out of it. It was bought for the College Museum, where it now is.

The sea eagle generally makes its nest in the high cliffs facing the sea, where it lives upon fish, young sea-birds, rabbits, hares, sickly lambs, and fawns, and carrion of every kind—his range of food, living and dead, being between that of the golden eagle and the grossest garbage of the vulture. This being the case he lives well, as scavengers are generally not very nice with their food if they get plenty of it. But although a carrion-feeder, it is not less acute in eyesight than the other; for it detects its prey, living or dead, at a great distance. It is often seen soaring at a vast height above a dead cod or conger eel or other fish lying on the beach, but as often sweeps on at a lower elevation. It is almost as omnivorous as the rook, which feeds on grain and grubs, potatoes and crabs, and whatever it can get.

As already said of the golden eagle, those who associate the eyrie of the erne or sea eagle with cloud-capped mountain brows, inaccessible precipices, and yawning fissures in the rocks, may be disappointed to know that they often select quite accessible places for their nest, sometimes choosing a rock or islet in the middle of a loch, where it makes its nest on the ground or on a tree, which need not be either large or high. Mr Wolley got two nests, of different years, in trees on separate islands in one loch, each only about four feet from the ground; nor do they always calculate the depth of water, for he knew one where a man could wade. He also knew of two placed on large Scotch firs, one by the side of a loch, the other miles away from any sheet of water. And he knew another on an alder tree, where a hooded crow had eggs on the higher branches of the same tree, and wild ducks were sitting on eggs in the deep moss and heather below, within twenty yards of it—strange companionship!—and yet all in harmony with Nature. But, as a rule, the sea eagle prefers cliffs by the sea-shore, or rocks not very far from the sea, to be near their chief means of life, which justifies Burns, in his "Elegy on Captain Matthew Henderson," saying—

> "Ye hills! near neibors o' the starns,
> That proudly cock your cresting cairns!
> Ye cliffs, *the haunts of sailing yearns*,
> Where echo slumbers!
> Come, join ye Nature's sturdiest bairns,
> My wailing numbers."

The eggs are about the same size as the golden eagle's, but not so rich in colour, being generally pale bluish white, with small red spots at the larger end—two in number, sometimes only one. They lay about the middle of April, a fortnight later than the golden eagle. The young are hatched about the middle of May, and leave the nest in August. The old birds continue to feed them for some time after quitting the nest, but ultimately drive them away to seek food for themselves, and it is these stragglers that are generally found away from their nesting-place, where

> "Triumphant on the bosom of the storm
> Glances the wheeling eagle's glorious form."

The scream of the sea eagle is loud and shrill, and can be heard a mile distant; but its usual cry is a sharp yelp, very like the "klee, klee, klee" of the kestrel, or sparrow-hawk, and sounds like "klick, klick, klick." There is not such difference in size betwixt the male and female as between the golden eagles, being more of carrion feeders. As a proof of this, their trachea is nearly double the size of the golden eagle's, and very wide. When living prey is wanting, dead sheep or dogs, cats or cod, or other offal, are greedily devoured. Taking advantage of his vulturine nature, it is often captured by a simple device—rough walls are built, and an opening left sufficient to let the bird through, where a running noose is placed, a piece of carrion is thrown into the centre, which the eagle pounces down upon, and after being gorged it walks to the opening, instead of flying up, gets noosed and strangled in such a way that a little tom-tit or gold-crested wren would disdain to be hanged in. It never flies straight up if an easier exit is at hand, as it cannot readily rise from the ground on the wing unless in a slanting direction. But in thus meanly creeping from a feast he is not unlike many a human gourmand who flies with all the pomp of spread-eagleism to a prepared guzzle, and leaves it as besotted and ignominiously—though less fatally.

After foretelling the three ills of Scotland, viz.:—the death of Alexander I. at Kinghorn, and the Battles of Flodden and

Pinkie—Thomas the Rhymer prophetically alludes to the Battle of Bannockburn long before it took place, and couples the erne with the raven to prey on the dead. He says—

"The burn of breid
Shall run fou reid."

"The first of blessings I shall thee show
Is by a burn that's called of bread;
Where Saxon men shall tine the bow,
And find their arrows lack the head.

Beside that brigg, out-ower that burn,
Where the water bickereth bright and sheen,
Shall many a falling courser spurn,
And knights shall die in battle keen.

Beside a headless cross of stone
The libbards* there shall lose the gree,
The raven shall come, the erne shall go,
And drink the Saxon bluid sae free."

But though a carrion feeder, he is not less acute in his power of sight than the golden eagle—the recognised king of birds, for, as York says to Richard II.,

"Yet looks he like a king—*behold his eye*,
As bright as in the eagle's, lightens forth
Controlling majesty."

The only bird in Britain that can singly cope with the prowling erne is the golden eagle, but they seldom come in contact, as their mission is much the same—self-sustenance and propagation of species—never warfare for power, or storing up wealth, like man, beyond the wants of the present hour. He will sometimes be seen cowardly decamping out of the reach of the raven or peregrine or the gull—and even the little screaming tern when seen near their nests—as you may have seen a flock of sparrows following in the wake of an owl or sparrow-hawk.

The sea eagle is heavier than the golden eagle, but its wings are not so long, for while it is about three inches longer from beak to end of tail, it is seven inches less in extent of wings. It is easily distinguished from the other by having its tarsus bare and long feathers on its thighs, for the golden eagle's are covered with feathers down to the toes. It also differs from the osprey or true fishers, by having its bill longer and its claws *grooved* underneath, instead of being *rounded* and rough, with small pointed scales for holding its slippery prey—unlike the osprey, too, the claw of its outer toe is not reversible, so it could not let go a living fish heavier than itself, which shows that Nature never meant the sea eagle to gain its livelihood as a fisher alone, although it has been seen to pounce upon a fish near the surface, and being unable to raise it or let it go, both drove ashore and were secured—both the winged yacht and its floating anchor, against the law of Nature that any creature should be drowned through inability to extricate the weapons she had given it, which, like a white blackbird, must be the exception, not the rule—as a too keen human angler has been found drowned in a deep pool (into which he had fallen when running along the bank), with his fishing-rod in his grasp and the hook fixed to a salmon, like the claw of the erne in the fish. I lately read in the papers that a man in Shetland saw one feeding on a dead sheep; on approaching he saw that the eagle tried but could not fly away, as its talons were firmly locked in the flesh. He tried to capture it, and a regular fight took place; it struck at him with beak and wings, tearing his hands and clothes; and he could only master it by falling on it and crushing it, as the bird-stuffer did with the St Andrews one. It measured seven feet across the wings. It was taken to Lerwick and stuffed and sent to Frank Buckland. *This* robber erne at least showed courage. Its talons are very strong, which may have suggested the comparison to fat Falstaff—

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* The prowling leopards on the English standard.

> "When I was about thy years, Hal, I was not an *eagle's talon* in the waist; I could have crept into an alderman's thumb-ring."

And its gourmandising nature may have induced Shakespeare also to write his picture of Cleopatra's feasts—

> *Mec.*—"Eight wild boars roasted whole at a breakfast, and but twelve persons there: Is this true?
> *Eno.*—"This was but as a *fly to an eagle;* we had much more monstrous matters of feasts."

Although it could never occur to him to draw the comparison between a beetle and an eagle, which he does in "Cymbeline"—

> "Often, to our comfort, shall we find
> The sharded beetle in a safer hold
> Than is the *full-winged eagle;*"

because its unretractile talons were fixed in the carcase of a sheep. Although fully as large and powerful as the golden eagle, it wants the bold dash and alert motion of that bird, being more allied to the vultures; it is clumsier in action, and, when reposing, sits with drooping wings and ruffled feathers, more like those with whom it was at first placed by Linnæus. It is not only a useful scavenger on the sea shore, but a prowling plunderer on the sea coast, stealthily seizing everything in the shape of animal or fish—alive or dead—and all kinds of offal near its abode, which its great strength and powerful talons enable it so well to do. But his cowardly, half-vulturine character is well-known to the other sea-birds which frequent the same haunts. He will, with equal greed, snatch a powerless young gulliemot, skua, or black-backed gull, an inoffensive rabbit, dying fawn or lamb, but sheer clumsily away from the parent birds, or even from the screaming little tern—for, as a rule, a thief or a sneak is generally a coward, and always a selfish one; nor will it scruple to steal from the true fishing osprey, and even patiently wait to feed on the remnants of a fish left by the other, as it has been seen to do. It is no favourite with other birds—from the tern up to the powerful skua gull—all have a dash at it when seen near their nests. A pair of these gulls, with their powerful wings and strong hooked beak, are more than a match for one eagle when they meet in deadly warfare. This fact in Nature is taken advantage of. A proprietor on the little island of Foula, in the north of Shetland, encouraged the skuas to breed there, for the express purpose of keeping the robber erne away, as it destroys sickly lambs and sheep, and has been seen to dash at the heads of weak cattle and deer; but he is not a daring robber. During summer and autumn large flocks of tame geese pasture amongst the most retired hills unprotected—quite close to its haunts, yet the hiss of the gander is sufficient to drive him away. But during the breeding season, as the erne pays his marauding visits along the coast, and sweeps past the cottages early in the morning, the poultry are sure to suffer. It has been known to exist five weeks without sustenance, and still possess undiminished vigour. A keeper inadvertently allowed one to live several weeks without food, when, through sheer hunger, it began to tear the flesh from its own wings, which fact, "Know-all" Shakespeare, in Henry VI., seems to allude to when speaking of Queen Margaret—

> "Reveng'd may she be on that hateful duke,
> Whose haughty spirit, wing'd with desire,
> Will cost my crown, and, like an *empty eagle*,
> Tire* on the flesh of me, and of my son!"

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* From the French *tirer*, to fasten talons on anything.

But Shakespeare's allusions to the eagle are many and various. For instance, he says in "Henry V."—

"For once the *eagle England being in prey*,
To her unguarded nest the weasel Scot
Comes sneaking, and so sucks her princely eggs;
Playing the mouse, in absence of the cat,
To tear and havoc more than she can eat—"

an apt illustration of the reprisals of the smaller nation. And in "Love's Labour Lost"—

"What peremptory *eagle-sighted eye*
Dares look upon the heaven of her brow,
That is not blinded by her majesty?"

In "Richard II."—

"Our eyes do hate the dire aspect
Of civil wounds ploughed up with neighbours' swords;
And, for we think the *eagle-winged pride*
Of sky-aspiring and ambitious thoughts,
With rival-hating envy, set you on
To wake our peace, which, in our country's cradle,
Draws the sweet infant breath of gentle sleep."

And as the bastard Falconbridge says in "King John"—

"The gallant monarch is in arms,
And, *like an eagle o'er his eyrie towers*,
To souse annoyance that comes near his nest.
And you, degenerate! you ingrate revolts!
You bloody Nero's ripping up the womb
Of your dear mother England,—blush for shame!
For your own ladies and pale visag'd maids,
Like Amazons, come tripping after drums;
Their thimbles into armed gauntlets change,—
Their needles to lances, and their gentle hearts
To fierce and bloody inclination."

Again, in "Henry VI.,"—

"Drones suck not eagles' blood, but rob bee-hives;
It is impossible that I should die
By such a lowly vassal as thyself."

And in "Pericles"—

"Thou art like the harpy,
Which, to betray, doth wear an eagle's form,
Seize with an eagle's talons."

Also, as Posthumous says in "Cymbeline,"

"They fly chickens
The way which they stoop'd eagles."

These quotations merely show the many allusions Shakespeare makes to birds. But this fact of the eagle living so long without food is a wise law of Nature, regulated by physical construction and mode of life. The camel, for instance, can travel long over the burning sand without water, owing to its multifarious stomachs; and the tortoise can live for months without tasting a single dandelion leaf or blade of grass. So the large crop of the erne may help it in its long fasts. For, while birth, life, and death play their important parts in the world, such scavengers and such butchers as the vultures and eagles are a stern necessity. And as the vultures are the types of the carrion consumers, the falcons (including the golden eagle) are the types of the destroyers of exuberant life—the sea eagle being the hybrid between them—a bold-looking but cowardly feathered Bardolph—the true type of a big, bullying, selfish, cowardly man. So like the sea eagle—

> "Which, to betray, doth wear an eagle's form,
> Seize with an eagle's talons."

To fill his maw his mission—no matter whether with carrion or offal, fish or flesh, or gobbled up young—not to fight; for he would sheer off and slink away even from a pugnacious little tom-tit if he disputed his right, as Pistol had to eat the leek from the hand of the plucky little Welshman. So—

> "From this session, interdict
> Every fowl of tyrant wing
> Save the eagle, feather'd king."—*Venus and Adonis.*

This applies to all petty tyrants, who have not the natural ability to be amongst men what the golden eagle is amongst birds. But as the timid sheep will defend her lamb against the wolf, and the hen her chickens against the erne, so sometimes will the erne defend her young even against man, which the following fact from the *Scotsman* shows:—

"A pair of sea eagles had an eyrie in the cleft of a great sea-cliff, known as the Bard of Bressay—the island which landlocks Lerwick harbour in Shetland. On the east side its cliffs rise sheer out of the sea about 500 feet; pierced and broken as these are at the base with fantastic cliffs and 'stacks,' they form a picturesque bit of rock scenery, which tourists try to 'do' by boat from Lerwick when the weather is favourable. The depredations of the eagles on the farms upon Bressay and the adjacent mainland were extensive. The hungry eaglets required food, and, almost daily, lambs were missed. To put a stop to this, a project was made to rob the nest. A daring young Shetlander—noted for his courage and spirit, an excellent shot, a splendid swimmer, and a fearless climber—volunteered to go over the Bard of Bressay and rob the eyrie of the eagles. The risk was great, for, besides the peril of the descent, there was the chance of a fight with the old birds. The nest could not be seen by looking over the crag; but from a cliff on the north side, which projects farther seaward, the position could be made out with a good glass. The place where the nest was is known as the 'pond' of the Bard of Bressay. A good way down the cliff is a large projecting boss, like an oriel window, with a great cleft in the middle of it. In this cleft the nest was built. As a descent could not be made without help, preparations were made. First, the exact distance of the nest down the cliff had to be ascertained. This was done by running a reel of thread, with a small weight at the end, down the crag. A companion on the point alluded to gave a signal when the weight was opposite the nest. The measurement was 90 feet. A strong Manilla two-inch rope was got, and, with two assistants, the cragsman very early one morning crossed the Sound of Bressay in a boat, and ascended the grassy slopes which led to the top of the 'Bard.' They arrived there about three o'clock; the weather was quiet and the air clear. A stout oak stake was driven firmly into the ground, and through an 'eye' at the top of it one end of the rope was passed. The daring climber tied this end securely round his body, while his assistants grasped the rope on the other side of the hole. He took off all superfluous clothing, and put on a pair of thin goloshes. In a belt round his waist he had a six-chambered revolver in case necessity arose for defending himself from the eagles. Over his shoulder was slung his fishing-basket, in which he hoped to bring the spoils of the eyrie. All being ready he went over the brink of the cliff, and partially climbed down to take the strain off the rope. When he got to the 'pond,' fortunately none of the old birds were at home; but he could not reach the nest, for immediately above the 'pond' was a great ledge of rock which overhung the eyrie, so that he was suspended in the air on the same level as the nest, but 10 or 12 feet from it. He signalled to be hauled up to this ledge, which was done; he then cautiously climbed down its face, which had a sharp inward slope, until he got upon the same strata on which the nest was built. By following an open seam, just wide enough to admit his fingers, he managed to scramble into the 'pond,' where probably no human foot had ever been set before. He could not stand upright in the rocky chamber, but crept round on his knees to the back of the nest where two pretty eaglets were. When they saw the strange intruder they buried their heads below the woolly lining of the nest and remained still. On examining the eyrie his attention was drawn to a spar of wood about 6 feet long by 3½ inches in diameter placed on the outward edge of the nest to keep it in position. The spar was laid down to fill up a gap in the rock so exactly that a mason could not have done it better. The base of the nest was composed of a huge mass of sticks and tangle, then layers of heather and grass; the inner circle or 'cappie,' as it is called in Shetland, being lined with wool. The 'cappie' where the eaglets lay was 2 feet in diameter. By the side of the nest were two gulls, with their breasts torn open, recently killed, while the bones of lambs, rabbits, and birds were strewn around. On lifting the eaglets out of the nest—though only a fortnight old—they were so large that only one could get into the fishing-basket. Having come so far he was reluctant to take only one, and was considering how he could get the other to the top of the cliff when a warning shout from above told him that one of the old birds was coming. It was the female, which had returned to fight in defence of her young. She came straight for the eyrie like a 'flash of lightning.' He had barely time to throw himself on his back into the deepest recess of the 'pond' and draw his revolver when the infuriated eagle was upon him. She made one terrible, but unsuccessful, swoop at him with talons and beak, while he simultaneously pulled the trigger of his revolver, which missed fire. The eagle hovered outside for a moment before renewing the attack; but a shot from the revolver, the loud report of which reverberated among the rocks, scared it to a distance of about 200 yards, where it continued to circle in the air, yelping like a dog. It was joined by the male, but though thus reinforced neither of them again returned to the nest. He placed one eaglet in the basket, took the other under his left arm, gave the signal to his companions, swung himself out of the 'pond,' and was safely hauled up—his perilous venture successfully done. Both of the eaglets throve well. They were fed three times a day on flesh and fish, and on this diet came into beautiful plumage. After being harried, the old birds were seen hovering over Lerwick. This was the first time for twenty years that eagles had been captured alive in Shetland."

There are many traditions of eagles carrying off children as prey for their young, and the following paragraph from a daily paper proves the fact :—

"A child, three years old, has been carried off near Trenesin, in Hungary, by an eagle, in sight of the child's father and mother. The father, who is a railway servant, was giving the signal to an approaching train, and the child was left alone for a moment. The eagle seized it and disappeared with its prey."

Sea eagles were once common in Shetland, and reared their young in comparative safety amid the inaccessible rocks and crags by which it is guarded from the sea on all sides; but, through trapping and shooting, they are now as nearly extinct there as they are in the Highlands of Scotland; and, as far as can be ascertained, only four pairs are known to have built nests in recent years on these northern isles. One pair had an eyrie at Noss—a high rocky island on the east of Bressay; another at North Maven; a third at Fitful Head; and the fourth at Unst. About ten years ago a great fight was witnessed on the top of the cliffs at Noss between two eagles, supposed to be from Noss and Unst. The conflict lasted several hours, and when the spot was afterwards visited it was found strewn with feathers and bones—one of the eagles had been vanquished and apparently devoured. The victor was thought to be the Unst bird, as the eagles at Noss were not again seen. Thus we see, while they do not care to contend with other species, they can sometimes fight to the death with one another—like two stags at rutting time; or two dogs over one bone; or two members of the human family, when their blood is up, over a will.

Some time ago I read a thrilling story in the papers of a fight with an eagle on the huge rocky mountain called Craigmaskeldie, but whether the bird was a golden or a sea eagle is not stated. The abrupt summit of this well-known mountain, which rises to a height of 2,000 feet above the shores of Lochlee, is well known to tourists, for nowhere else in Scotland is there a finer combination of pastoral scenery with what is stern and wild. Craigmaskeldie is more like a colossal rock than a mountain, and is a striking exception to the other Glenesk hills. It used to be a favourite haunt of eagles until they were trapped and shot. The eagle of which I write was noted for its strength and rapacity, and locally called "the eagle of Craigmaskeldie." The eyrie was perched upon a narrow shelf which jutted out from the face of the precipice, and is still to be seen. When they had their young the depredations of the old birds in the glen gave rise to all sorts of stories—true and fabulous; and the robbing of this particular eyrie was considered either an impossibility or one of the greatest proofs of courage and daring that could be accomplished, as it was so high up, and the ledge apparently so narrow that, in the event of a struggle with the old birds, the daring adventurer was certain to be hurled off and dashed lifeless on the rocks below (granting it had been possible to reach the nest). But a young man smitten with love for a maiden in the district—that most powerful of incentives—to gain her affections, induced him to risk it. Like the Shetland lad—

"He got up very early one morning, but alone, and by mid-day was toiling up the rugged side of Craigmaskeldie; the air was sultry, and not a breath of wind tempered the sun that was reflected and intensified by the rocks. He had not what is called 'a good head' for climbing, and grew dizzy—like the boy on the main truck when he happened to look below. His want of experience led him to choose a devious and perilous path; at some places there was no path, and he was astonished at his good luck when he reached the point aimed at, viz., a rocky summit which jutted out from the mountain's brow, over the narrow ledge on which lay the eagle's eyrie. From this point the nest was distinctly seen, tenanted by three half-fledged eaglets; both of the old birds were absent, and being unmolested in such close proximity to their nest was the best proof that they were on a far journey: for, when a mere speck in the sky, the keen eye of the eagle can detect the tiniest lamb on the hillside and timid hare crouching in the bracken. His plan was simple, he unwound from his waist a coil of rope, which he tied round a knob of rock. Having tied the other end under his shoulders he grasped the upper part of it and slowly let himself down the face of the cliff. At a distance of 20 feet down he hung in mid-air exactly opposite the nest, but about 7 feet from the ledge. By jerking his feet repeatedly he set a pendulum motion agoing until his feet touched the rock, against which he kicked with all his force and bounded back, then rebounded with such violence when landing on the shelf that it took all his staying power, along with a desperate clutch at the protuberances on the surface of the precipice, to prevent him from being hurled off once more. The ledge was about 15 feet long and only 3 feet broad. The eaglets stared at him with great composure as he lay exhausted on his narrow resting-place quivering with fatigue and excitement. He could hardly help smiling as they kept staring at him with an air of composed ferocity, blinking at him as the white membrane came over their great, bright yellow eyes—as yet unaccustomed to the full meridian glare. He prepared for the coming conflict. His weapons were few—a pair of pistols, a sharp hunting knife, and a short, stout stick. He laid the stick and knife within easy reach, and sat with a pistol in each hand. In this constrained posture he remained two hours before any warning of danger came. It was now past three o'clock, when a far-off faint scream reached his ear. The eaglets grew suddenly excited, they began to flutter, their eyes to gleam, and their ravenous beaks to open in the utterance of hoarse, savage, gasping cries. There was soon no mistaking the swift flight of the large bird bearing down on the eyrie. He must have been concealed by the afternoon shadow stealing over the face of the precipice, for it was within 200 yards before the eagle suddenly swerved, and, with a piercing scream, swept up the face of the crag till she was far overhead, at the same time letting her prey fall into the vale below. He knew this was the prelude to a life or death struggle with the infuriated bird. All now depended on his coolness and absence of the other eagle. Should either condition fail he read his fate in lurid letters—hurled from the narrow ledge down into the abyss below with broken skull and lacerated form. He drew back under an abutment of rock, and not an instant too soon, for the eagle swooped down like a living thunderbolt upon the very spot where he had crouched the moment before. The rush of her descent sounded in his ears like a whirlwind. Her nearest pinion grazed his cheek, and, as she drew off like a flash of lightning to make a final swoop at him, he fired with no steady hand. Between him and the coming eagle there was but a cloud of smoke. To his unbounded relief, when the smoke cleared away, the bird had disappeared. Peering over the cliff he saw the savage mistress of the mountain falling a huddled mass of blood-stained feathers down into the glen. Before he could rise from his prostrate position a terrific blow struck him on the back of the head. He sprung up on his knees, turned, and found himself facing the dreaded male eagle of Craigmaskeldie. The blood was streaming from his head, and his heart sunk as he gazed on this merciless foe which now rushed upon him. He was hurled on his back, his hands, which he held over his face, were torn. Again he rose to his knees and seized his knife (the unused pistol was out of his reach). The eagle closed with him, and incessantly struck at him with wings, beak, and talons, while he lunged at the bird with his knife; but such was the fury and rapidity of its motions that no serious wound was inflicted. He felt that he was growing weak from loss of blood, and, making a final effort, seized the eagle's throat with his right hand and one of its legs with his left; but was again thrown on his back. They rolled over one another, and yet, strange to say, they kept the ledge. The bird freed its neck with a convulsive wrench, and plunging its talons in his shoulder prepared to drive its beak into his eyes. With a last effort, in which despair and fury fought for mastery, he struck the eagle on the breast with his clenched fist, then seized his pistol and fired on the ferocious bird. A loud scream rent the air. The eagle rose high, with a broken, fluttering flight; some drops of blood fell on his face. He waited in dreadful suspense for a renewal of the conflict, but the bird had disappeared—withdrawn into the evening sky to sink in death, perchance, on a tuft of heather. The man tried to rise upon the ledge and fainted away."

The pistol shots had been heard and the struggle seen from below. Some hardy shepherds ascended the precipice, and, making use of the daring lover's rope, brought him down in safety, but unconscious. It is needless to say that such a convincing proof of love won the heart of his future partner in life, although it destroyed both the eyrie and the eagles of Craigmaskeldie. To prove its authenticity, an interesting account of this eagle's nest will be found in a letter of the late Dr Guthrie, in the *Sunday at Home* for January 1874. I think they had been golden eagles, with the order of Nature reversed, for the male in this instance seems to have been very much the largest of the two; in fact, he was amongst eagles what Juliet's old nurse says Paris was amongst men—

> "O, he's a lovely gentleman!
> Romeo's a dishclout to him,—an eagle, *Madam*,
> Hath not so green, so quick, so fair an eye,
> As Paris hath."

Although getting rare in the British islands, sea eagles are still pretty numerous at Horn Head—a wild, precipitous coast overhanging the sea, opposite Torry Island, the farthest north-west point of the County of Donegal, in Ireland. But though only found now in the most rugged and inaccessible situations, they are simply driven there as a last resort by man in his higher mission of progress—on the same principle that the mammoth, the mastodon, and the dodo have been driven from the world; or as the lion and the tiger and the elephant may yet be from the jungles of Africa and Asia—as the wolf, the bear, and the wild boar have been driven into the limbo of extinction from our own island, including the very district of which I am writing, by the ever-widening circle and tyranny of what is called civilization. But were it not for the usurpation and blind exterminating influence of man, in his too often wilful destruction of animal life, and inherent desire to destroy every creature wilder than himself, the sea eagle would be found on every rocky headland, and seen sweeping around every rocky coast wherever birds and quadrupeds lived and died, or stranded fish were found on the littoral shores of Britain.

Before closing this sketch of our two eagles, I may remark that Shakespeare, too, like Samuel, coupled the king of birds with the king of beasts; for, in Henry VI., he makes brave old Warwick exclaim—when dying—before he, too, became extinct in death—

> "My blood, my want of strength, my sick heart shows
> That I must yield my body to the earth;
> And, by my fall, the conquest to my foe.
> Thus yields the cedar to the axe's edge,
> Whose arms gave shelter to the *princely eagle*,
> Under whose shade the *ramping lion* slept.
> Whose top-branch overpower'd Jove's spreading tree,
> And kept low shrubs from winter's powerful wind.
> These eyes, that now are dimm'd with death's black veil,
> Have been as piercing as the mid-day sun
> To search the secret treasons of the world;
> The wrinkles in my brows, now fill'd with blood,
> Were liken'd oft to kingly sepulchres;
> For who liv'd king but I could dig his grave?
> And who durst smile when Warwick bent his brow?
> So now my glory smear'd in dust and blood!
> My parks, my walks, my manors that I had
> Even now forsake me; and of all my lands
> Is nothing left me but my body's length!
> Why, what is pomp, rule, reign, but earth and dust?
> And live we how we can, yet die we must."

THE OSPREY, OR FISHING HAWK.

(Pandion Haliætus.) Savig. *(Falco Haliætus.) Linn.*

> "Our eyrie buildeth in the cedar's top,
> And dallies with the wind, and scorns the sun."—*Richard III.*

The osprey, like the golden and sea eagles, forms a genus by itself in the same family. It does not breed in Fife, although it has been shot here. It is a handsome, yet powerful bird; its body is long and narrow, like a clean-built yacht; the wings are also long, and admirably suited to its mode of life. Unlike the sea eagle it is strictly piscivorous, living entirely on fish, which it seizes when swimming near the surface, its keen eye being supremely adapted to detect its prey when hovering above it—as the kestrel hovers above a mouse or beetle on land. There is little fear of the osprey being dragged under water and drowned, as said of the sea eagle, for, by a wise provision of Nature, its muscular toes and reversible claws are so formed as to let the fish go instantly if too heavy, as if Nature had taken particular care to make the fish hawk perfect for its mission. For, though slender, the body is compact and muscular; and, while the toes and claws are long, the bill is short and strong; the culmen broad and round; and the tomia or cutting edge of the upper mandible nearly straight as far as the hooked tip. The tarsi and feet are covered with scales, like armour. The under side of the toes are very rough, and armed with small sharp-pointed scales; the claws are large and much curved, rounded above and below, and taper to a fine point to give every facility to hold on or let go. The claw of the outer toe is much longer than that of the inner one, which is the reverse of the rest of the Falconidæ. The toe itself can turn to any angle to take a firm grasp of its slippery prey. The thigh is long and strong; the tarsus very short and muscular, measuring two inches round below the knee, and very strong for the size of the bird, enabling it to keep firm hold of a grilse or trout. The feet are armed with toes and claws of such length and mobility as to embrace a large surface and give perfection to its grasp. Their plumage also is different from the rest of the Raptores, being denser on the lower parts—more like divers and ducks, while, to have no impediment to clutching, the thighs are destitute of the long plumes which adorn their legs, the osprey's being covered with short, close-set feathers. The rounded surface of the claws alone (to be easily withdrawn), instead of hollow or flat, like the rest of its congeners, is sufficient to separate the osprey from its allied genera; but it possesses other distinctions in the form of the bill and legs which warrant its being placed in a genus by itself. The outer toe being reversible, and its claw longer than the rest, is a striking care of Nature. Like all birds of prey the female is the largest and most powerful, often weighing above 5 lbs., and measures 26 inches from point of bill to end of tail, and 68 inches in extent of wings; the male 24 and 64 inches. From its large size it is sometimes called the fishing eagle. The common osprey is the type of the genus, which contains some other species, but not found in Britain. The wings are two inches longer than the tail. The bill and claws are black; the legs and toes pale blue; the iris yellow. The head, which is small and flat, is white, finely marked with oblong streaks of dark brown. The under parts of the body are white, spotted with brown; the upper parts dark brown. The female differs little in plumage from the male. The close texture of the under parts is in perfect harmony with its habits, for, being often immersed in water, it is in perfect keeping with Nature's design, nor is the want of the plumes on the thighs (which would only be an encumbrance) less a proof of her wise economy. There are few more striking adaptations of structure for a given purpose than what is seen in the osprey, which may have induced Shakespeare to liken Coriolanus to it, when the Volscian General, Aufidius, was asked by his lieutenant if he thought Coriolanus would retake Rome, replied—

> "I think he'll be to Rome
> As is the osprey to the fish, who takes it
> By sovereignty of Nature."

Here is a bird of prey very much the same as the eagle, or hawk, but destined to prey upon fish, and how wisely and well Nature has fitted it to her design. It is not by diving or swimming and seizing the fish with long, sharp-pointed bill, like the gannet or diver; but, true to its family, the eagle, hawk, and falcon, to be clutched by its long and powerful talons as they swim near the surface; and, as fish only occasionally do so, the osprey is furnished with extremely long and powerful wings—with strong depressor muscles—by which it can not only fly with ease to great distances in search of prey, without fatigue, but also to fix itself in a particular spot—poised on air—with a quivering motion, like the kestrel over a mouse, or a bee or humming-bird over a flower, watching the proper moment to descend like a feathered thunderbolt—guided by an eye so transcendently true as to strike with unerring certainty, while its powerful muscles can check its expansive pinions exactly at the proper time—like the newest patent brake on the railway—so unlike the gannet or the tern, which close their wings when plunging, head foremost, deep into the yielding sea; and to assist the long wings in the sudden dash on the water the under part of its body is clothed with close and dense plumage, like the glossy velvet of the duck, while the upper parts retain the kindred feathers of the eagle or the hawk. And as great rapidity and power to execute sudden turnings are not necessary for its mode of life, its tail (or rudder) is not nearly so long as the other hawks, while its wings are much longer. How different from the rapid evolutions of the long-tailed, short-winged sparrow-hawk, which can glide amongst trees like a flash of lightning, unscathed—the osprey's mission being to sail through the air in search of food, or be able to hang poised on it, and have the power to rush perpendicularly down upon it. How different from the half-cowardly hesitation of Macbeth, who, after purposing to murder Macduff, allowed him to escape, which made him ruefully exclaim—

"The flighty purpose never is o'ertook
Unless the deed go with it;"

an apt expression, for how often are opportunities lost and things left undone by simply not doing them at once, which just shows

"That what we would do, we should when we would."

The slippery nature of its prey, and its facility for sinking out of reach, render a very powerful instrument of prehension necessary. And how perfectly Nature has supplied this is seen in the long and strong tibia, the short but very strong tarsus, and equally muscular toes, shod with conical points for the special purpose of helping it to grasp with the mobility of universal joints, for the lateral toes can turn at right angles to the first and third so as to ensure perfection in its clutch; and to certify this still more, the outer toes are considerably longer than the others, to have more scope when clutching with both feet, while the 1½ inch long sharp-pointed claws complete the perfection of this inimitable instrument of grasp—so nicely formed as not only not to tear the soft flesh of the fish when lifting it out of the water, but instantly to be withdrawn if it has caught a tartar in the shape of a fish too heavy to lift, without which facility, instead of the osprey lifting the fish into the air, the fish would drag the bird down into the water and be drowned, as sometimes happens with the sea eagle. Although Wilson, the American ornithologist, says that sturgeons and other large fish, with the fish hawk fast to them, have been found dead on the sea-shore—yet "he never saw them," and though he had, there is no stereotyped rule in Nature, and any deviation from her general law only helps to show its general rectitude, as a man may tumble out of a window although the door be there. It is a great pity that this beautiful and comparatively harmless bird is not more numerous in Britain, for, except in the thinly-peopled districts of Scotland beyond the Grampians, it is seldom seen, and rarely even there. One, however, was shot last May near Inveresk, and this paragraph shows how it is hunted down :—

> "On Wednesday an osprey eagle was shot by a keeper on the estate of Lord Elphinstone, at Carberry, near Inveresk. It measured 2 feet long and 5 feet 6 inches from tip to tip of wings ; it was seen on the estate for some days, and when brought down fought determinedly for life, but was at length overpowered and killed."

A pair used to breed on Loch Maree, where there are plenty of trout and salmon ; also on the larger lochs, such as Loch Laggan, Loch Tay, Loch Awe, and Loch Lomond, and in Sutherland and Caithness shires ; also in the eastern and some of the midland Counties of England. The nest is generally on the highest part of ruins (such as the chimney)—on islands, in lakes and lochs, or on rocks and trees adjacent. They lay in the beginning of May ; but they are too often robbed of their eggs, and the young hardly ever permitted to fly, which accounts for their decreasing numbers in Scotland. The nest reminds one of that of the wood ant, being usually in the form of a cone cut off at the top. The sticks project very slightly from the sides, and are built up with turf and other compact materials ; the summit is of moss, flat and even ; the cavity forms but a small part of it. There is not another nest like it. The osprey is true to its old haunts, and, if not killed, returns from year to year to the same nest. The eggs are two or three, rarely four, about $2\frac{1}{2}$ inches long by $1\frac{7}{8}$ inches—yellowish white, finely marked, and almost covered with large patches of deep reddish brown. They are more oval than those of the rest of the Falconidæ. Although rare with us, the osprey is abundant in America, where the nests are generally on trees. Wilson climbed up to several of them, on the sea coast, constructed with large sticks from ½ inch to 1½ inches thick and 2 or 3 feet long, intermixed with cornstalks, sea-weed, pieces of wet turf in large quantities, and lined with dry sea-grass—the whole forming a mass seen half-a-mile off, and large enough (he says) "to fill a cart and be a good load for a horse, and so well put together as to adhere in large pieces after being blown down by the wind." Audubon, another American ornithologist, also says the nest is very large, fully 4 feet across, and of such a mass of materials as to be as deep as it is in diameter, generally on a large dead or decaying tree, near water, often upwards of 50 feet high, sometimes only 7 or 8 feet from the ground. Twice he saw it on the ground, and once on the roof of a low house; so, as already said, there is no hard and fast rule with Nature. Birds, like other creatures, adapt themselves to circumstances. Wilson says "no less than 300 nests have been counted at one time on an island near New York, the birds living as peaceably together as so many rooks." The male chiefly supplies the female with fish during incubation. The young remain in the nest till able to fish for themselves, helped by the old birds. They are singularly gentle and affectionate, seldom molesting other species—rearing their young and pursuit of their finny prey being their sole care, and are more social than the rest of the family. In America it is greatly molested by the white-headed sea eagle, and often forced to relinquish its prey, as it would be by the white-tailed eagle with us were both as numerous, but both being rare in Britain they seldom come in contact. Wilson says—On leaving the nest the male flies direct to the sea, then sails around in easy curving wheels, sometimes turning as on a pivot—apparently without the least exertion—rarely moving its wings, his legs extended straight behind; his remarkable length and curvature of wing distinguish him from all other hawks. The height at which he elegantly glides varies from 100 to 200 feet—sometimes much higher—all the while, like the golden eagle above land, calmly scanning the sea below. Suddenly he checks his course, as if struck by some object, which he surveys for a few moments with such steadiness that he seems fixed in air—flapping his wings. This object he abandons, or rather the fish has disappeared, and he again sails around as before. His attention is again arrested, and he descends with great rapidity; but before he reaches the surface he shoots off on another course, as if ashamed that another victim has escaped. He then sails low over the surface, and by a zig-zag descent, without seeming to dip his feet in the water, seizes a fish, which, after carrying to a short distance, he probably drops or yields up to the bald eagle, and again ascends by easy spiral circles to the higher regions of air, where he glides about in all the ease and majesty of his species. At once from this ærial height he descends like a perpendicular torrent, plunging into the sea with a loud rushing sound, and with the certainty of a rifle bullet. In a few moments he emerges, bearing in his claws his struggling prey, which he always carries head foremost, and having risen a few feet above the surface, shakes himself like a water-dog, and steers his heavy and laborious course directly for the land. If the wind blows hard and his nest to windward, it is amusing to see with what judgment and exertion he beats to windward—not in a direct line—in the wind's eye, but by several tacks to gain his end, which is the more striking when we consider the size of the fish he sometimes bears along. The remains of a shad taken from a fish-hawk, on which he had begun to feed, and ate a considerable portion of, weighed 6 lbs. Another was passing at the same place with a large flounder in his grasp, which struggled and shook him so that he dropt it on the shore. Yet the weight of the osprey is only 4 or 5 lbs. Montague says the osprey flies heavily—not unlike the common buzzard—but often glides slowly along with motionless wings. When searching for prey its wings are in constant motion, although the bird itself remains stationary for a considerable time. Its greater size perhaps renders it difficult to continue suspended with the imperceptible motion of the wings of the kestrel. When crossing the bridge over the river Avon he saw an osprey hawking for fish ; its attention was arrested, and, like the kestrel in search of mice or a beetle, it became stationary. After a pause it descended to within fifty feet of the water and continued hovering, then precipitated itself into the water with such great celerity as to be nearly immersed. In a few seconds it rose, without any difficulty, with a trout of moderate size ; but instead of alighting to feed on its prey it soared to a great height and did not descend within his view. From this we can fancy we see the osprey hovering above a fish in the water when we see the kestrel hovering above a mouse on land—the counterpart of its larger fellow-hunter—the one scanning the water, the other the fields, impelled by the inexorable first law of Nature. But, like our eagles, the interesting fish hawk is getting rare in Britain—giving place to plainer birds, as the patricians were superseded by the plebeians in Rome before she fell; and as the aristocracy may yet be by the democracy—not only in Britain but throughout the world—the classes giving way to the masses, as Mr Gladstone has it. But, as Shakespeare makes Coriolanus say to their tribunes—

> "Thus we debase
> The nature of our seats; and make the rabble
> Call our cares, fears; which will in time break ope
> The locks o' the senate, and bring in the crows
> To peck the eagles."

Or as Rosse and the Old Man say, when speaking of the dark and stormy night when Duncan was murdered by Macbeth,—

> *Rosse*— "By the clock, 'tis day,
> And yet dark night strangles the travailing lamp;
> Is it night's predominance, or the day's shame,
> That darkness does the face of earth intomb,
> When living light should kiss it?"
>
> *Old Man*— "'Tis unnatural,
> Even like the deed that's done. On Tuesday last,
> A falcon tow'ring in her pride of place,
> Was by a mousing owl hawk'd at, and killed."

The Goshawk.

(Falco Palumbarius.) Linn. (Astur Palumbarius.) Bescht.

> "Was Mahomet inspired with a dove?
> Thou with an eagle art inspired then."—*Henry VI.*

This powerful bird stands at the head of the sub-family, the Accipitrina: the generic features of which are—bill short and curving from the base, with the sides compressed, and a prominent lobe on the cutting margin of the lower mandible, instead of the tooth and corresponding notch in the lower one of the true falcons; nor is the bill so strong as theirs, and though its wings are shorter, its tail and tarsi are much longer—like the sparrow-hawk's, which it resembles both in form and habits. Its prey is taken entirely on the wing. Carrion of all kind is spurned, even when pressed by hunger. Birds and quadrupeds, such as wild ducks, hares and rabbits, are its general food, which it pursues with great rapidity—its short wings and long rudder-like tail being specially given by Nature for rapid evolutions; unlike the true falcon's, whose long wings and shorter tail enable them to outsoar and swoop down upon their prey—for the goshawk, like the sparrow-hawk, skims low, and once started never gives up the pursuit of its victim until its quarry is hunted down—the feathered type of ambition. In his "Brigs of Ayr," Burns gives a fine picture of its rapacity—

"Lo! on either hand the listening bard
The clanging sough of whistling wings is heard,
Two dusky forms dart through the midnight air,
Swift as the gos drives on the wheeling hare."

The "dusky forms" are supposed to be the spirits of the brigs. William Laidlaw, in his exquisite ballad of "Lucy's Flittin'," also notes the speed of the hawk—

"When, *swift as the hawk* in the stormy November,
The cauld norlan win' *ca's the drift o'er the lea*,
Though bidin' its blast on the side o' the mountain,
I think on the smile o' her bonnie black e'e."

Shakespeare, too, makes Hamlet say to his father's ghost about his murder—

"Haste me to know it, that I with wings as swift
As meditation, or the thoughts of love,
May sweep to my revenge."

The flight of the goshawk is extremely rapid and protracted. It sweeps along the margin of the fields, through the woods and by the edges of ponds and rivers, with such speed as enables it to seize its prey by merely deviating a few yards, assisting itself by its long tail, which it throws to the right or left, up or down, to check its progress or suddenly alter its course.

At times it passes like a meteor through the underwood, where it secures squirrels and hares with ease. Should a flock of wild pigeons be seen it immediately gives chase, soon overtakes, and, forcing its way into the centre of the flock, scatters them in confusion, then emerges with one in its talons, and dives into the depths of the wood to feed on its victim—

"Outstripping crows that strive to overfly them."

The goshawk may have been in Shakespeare's mind's eye when he makes the proud Duke of York declare, when hemmed in by his foes before death—

"My ashes, as the phœnix, may bring forth
A bird that will revenge upon you all;
And, in that hope, I throw mine eyes to heaven,
Scorning whate'er you can afflict me with;"

To which Clifford answers—

> "So cowards fight, when they can fly no further,
> So doves do peck the falcon's piercing talons,
> So desperate thieves, all hopeless of their lives,
> Breathe out invectives 'gainst the officers."

And, after being stabbed both by Clifford and Queen Margaret, to show what apt poetic use Shakespeare makes of flight, York exclaims—

> "Open the gate of mercy, gracious God!
> *My soul flies through these wounds* to seek out Thee."—*Henry VI.*

It is needless to say the goshawk has no mercy, for it is said to prey on its own species. How different from the grandeur of mercy in man—

> "For earthly power doth then show likest God's
> When mercy seasons justice."

This beautiful though rapacious bird is extremely rare now in Britain, and seldom seen even in the north of Scotland. As usual with birds of prey the female is the largest, being 26 inches from beak to end of tail, and 45 inches in extent of wings—against 20 and 43. The tail is 12 inches long, and the bill $1\frac{1}{2}$ along the ridge, the claws sharp and strong—the one on its first toe being $1\frac{3}{4}$ inches long. Its general colour is bluish-grey on the upper parts, and greyish-white on the lower; the bill is light blue at the base; the feet yellow, and claws black—the iris orange. It is about the same size and colour as the gyr-falcon, nearly white, for which it is often mistaken, but it is easily distinguished by its shorter wings and longer tail. Though rare with us, it is often found in the extensive forests of Switzerland. Holland, and Germany, and common in France and Russia. It makes its own nest, like the sparrow-hawk, generally on a high tree on the outskirts of the forest—rarely in the interior—no doubt to have the best lookout for prey. They also build on the cleft of a rock by the sea shore. The eggs are three or four, $2\frac{1}{4}$ inches by $1\frac{3}{4}$, something like the colour of the bird, bluish-white, sometimes faintly marked with streaks and spots of red. The young are hatched in the middle of May. It was used by falconers as the most powerful of the short-winged, or so-called "ignoble" birds of prey; and though it does not soar nor "stoop," it flies direct at its game, chiefly grouse, pheasants, ducks, geese, rabbits and hares—as its smaller cousin the sparrow-hawk was trained to fly at the blackbirds and larks, etc.—these two representing the short-winged hawks, as the gyr-falcon and the peregrine the long-winged falcons or "noble" birds of prey—the nobility being in the height at which they soared.

It is needless to say it does not breed in Fife, indeed it is questionable if it breeds now in Britain—not even in the Highlands of Scotland, where it was once common. Clearances for sheep and deer preserves, with the cultivation of grouse and black-cock, have done what the gardener does to weeds in the kitchen garden, or to the blackbird in the orchard, or as the starling is said to be doing to the lark on our links and meadows. Neither has the repeated sales of Highland estates from the old families to sporting cockney proprietors tended to prolong its existence; for, by his extra swarm of gamekeepers the Duke of Leeds tried to extirpate everything in the shape of eagle, falcon, buzzard, harrier, or hawk as worthless "vermin," for the cultivation of grouse, at Applecross in Ross-shire; whilst those of the Earl of Dudley, who bought the fine Highland estate of Glengarry, in Inverness-shire, from the trustees of the Earl of Aboyne, and re-sold it to another English proprietor, Mr Edward Ellice (who for forty years was M.P. for the St Andrews Burghs)—were not less anxious for the extirpation of "vermin." Nor are the native proprietors of the Highlands less willing to extirpate our interesting birds of prey—and close the roads against those they may deem human vermin—than their English successors, who itch to drive off the natives of Britain—human as well as feathered—for the propagation of grouse and deer, and shut up the interesting uncultivated Highlands of Scotland as a mere preserve for so-called sport; but the time may come when these large tracts of uncultivated mountain land may be utilised as a great public boon for the welfare of the nation. Even "Rhidoroch," or the "Dark Glen," in Cromartyshire, is now added to the already overgrown proprietorship of mountain, moor, and glen by the Duke of Sutherland, through his marriage with the late Duchess, which large track is turned into and named "The Duchess of Sutherland's deer forest." His grandfather earned lasting odium by clearing out the true proprietors—his faithful Highlanders—at Straths Brora and Helmsdale, to make room for sheep and deer. Where once proudly stalked the true proprietors—the hardy mountaineer, and where the goshawk, the eagle, and the falcon skimmed or soared above the mountain peaks, giving character and adding beauty to the grandeur of this dark and wild domain, so naturally suited for Nature's balancers of life, the birds of prey, and which, for grandeur and blended loveliness of mountain, loch and river, rock and glen (for its size), is not surpassed in the world; where, if the nominal proprietors have the sheep, the grouse, and the deer, the nation has lost the true proprietors of the bens and glens—the Highlanders, the eagles, the falcons, and the hawks, through mistaken if not unwise policy; for it is questionable if the extirpation of so-called "vermin"—human as well as feathered—has increased those they wish to propagate. The goshawk is still found in the Orkneys, where it breeds on the sea cliffs. It used to breed in the forest of Rothiemurchus, and on the wooded banks of the Dee. To show how ruthlessly birds of prey are destroyed—in a paragraph as far back as 1858, headed "The last of the Pennan Falcon Hawks," the *Scotsman* says:—

> "Four magnificent falcon hawks, which the people in the district affirm have for upwards of sixty years had their eyries and nursed their broods in the cliffs of Pennan, have now been exterminated, with their young, by Mr Mitchell, gamekeeper, Auchmedden. Numerous fruitless attempts have been made to shoot them, but Mr Mitchell, with assistants, has 'done for them' at last. When their young were hatched he took two traps and was lowered down the cliffs by a rope 40 fathoms long, and at night set the traps at one of the nests. Next morning the female was trapped, and by night the male and the young ones were destroyed. The same plan was taken with the other pair. Each nest had four young ones—in all twelve hawks destroyed. The female in the second eyrie measured 48 inches between the tips of the wings. Her upper mandible was overgrown, and the under one was turned round to one side like a ram's horn, showing that she must have been very old. The four old birds and two of the young have been neatly stuffed. In and around the eyries were an immense number of legs and wings of grouse and partridge. Mr Mitchell *might have left one pair as living specimens.*"

So say I, for a more systematic piece of heartlessness can scarcely be imagined, as if Nature had made a mistake in making her birds of prey to be thus exterminated.

The only instance I know of a goshawk being found near St Andrews was in the spring of 1842, when a "big white hawk" was seen for some weeks flying about Kemback wood, near Dura Den, a wooded district about six miles from St Andrews. Several people tried to shoot it; it was at last winged, and, after a fierce struggle captured, and kept in an old parrot's cage for several weeks, fed with young rabbits and birds; but the cage being too small, broke all the feathers of its long tail and disfigured the handsome bird so much that the man who shot it gave it away. As a drowning man is said to clutch at a straw, I am glad to clutch at this morsel of fact, and set the goshawk down amongst our St Andrews birds, on the principle that I would call a guinea mine if I found it in my pocket.

THE SPARROW HAWK.

(Falco Nissus.) Linn. *(Accipiter Fringillarius.) Ray.*

> " Gnats are unnoted whereso'er they fly,
> But eagles gaz'd upon with every eye."—*Venus and Adonis.*

This bold little life-pruner is so well-known, not only about St Andrews, but every wooded district in Scotland, and by every nest-hunting schoolboy, as to need little comment, and yet it is astonishing how varied nature appears to different eyes. A ripple of the sea on the sands has its music, as well as the mellow whistle of the blackbird ; a particle of sand has its history, as well as the pyramids of Egypt ; a little gowan on a Scottish lea is as dear a remembrancer as the most gaudy magnolia of India, or passion flower of Africa ; so the little sparrow-hawk has a character as well defined as the condor of the Andes—a reputation for boldness and rapacity more marked than even that of the golden eagle—alas ! shall I say, *once* of Scotland ! A wee, hiding forget-me-not has an interest of its own, as well as the lofty pitch pine of the swamps of America, or the wide-spreading mahogany trees of Honduras, or the leafy giant trees of California, if it be carefully studied. One thing that strikes us is the difference in the size of the male and female, the one hardly 12 inches long, the other fully 15 inches ; and while the male is only 23 inches across the wings, the female is 28 or 28½. The difference is so much that Lelley says, " In rearing young hawks care should be taken to separate them, else the females, being larger and stronger, are sure to devour the males, as I have repeatedly found when caged together." Its beak, like the goshawk's, curves from the base, forming a round culmen or ridge, and for the purpose designed by Nature is, like all her work, perfect—the scissor-like cutting margin of the upper mandible having a well-marked lobe for clipping its prey. Its wings are shorter and the tail longer than the true falcon's. Its legs and toes are much longer and more slender, which easily distinguish it from the kestrel or merlin falcon. Its short wings and long tail enables it to turn quickly and execute marvellously rapid evolutions, and to glide amongst trees or skim over the surface of the ground when in pursuit of prey ; but when flying far, like the goshawk, it flies high, with a constant flap of the wings—seldom in circles like the falcon ; and when it does it is only in a hurried manner, different from the wheeling or soaring of the long-winged birds of prey, which outsoar, then swoop down upon their victims ; while it generally flies below them, and being better equipped for speed, it soon overtakes ; its long legs come into full play when snatching in the passing, whether it be a single bird or through the centre of the flock, from which sometimes it emerges with a bird in each grasp. It is full of fire and action, and, like a human fool, utterly void of sense or fear when after prey. It will dash through a pane of glass at a caged canary, or snatch a panting lark from the hand of the most daring soldier, defying him to his teeth, while its bright yellow fiery eyes seem burning like sparks of living gold.

A servant told me, that when cleaning a room in the south side of the city—the under sash of the window up—a canary singing in its cage—a crash was heard. On looking at the window there was a sparrow-hawk jammed in between the sashes ; it had broken the one pane but failed to get through the other. After recovering from her fright she extracted the daring little thief, and set it free to steal or kill, and so fulfil its mission according to the wise design of Nature—or say Providence ; for Shakespeare, borrowing from what is called Holy Writ, makes Hamlet say—

> "We defy augury—
> There is a special providence in the fall of a sparrow,"

and no doubt a special design in the use of the sparrow-hawk.

To show the excellent use Shakespeare made of birds, when Mrs Ford and Mrs Page bribed Falstaff's young page to their service of preying upon Sir John, he makes Mrs Ford say to the page—"How now, my eyas musket, what news?" and as an "eyas musket" means an unfledged sparrow-hawk, it shows his discernment. Equally so is Mr Page's expression to Mr Ford, when baffled by their wives—"I invite you to my house to breakfast ; after, we'll a-birding together ; I have a fine hawk for the bush"—the sparrow-hawk being the only one that could hawk amongst bushes. Or, as he makes Hamlet say to the players—"We'll e'en to't like French falconers, fly at anything we see. We'll have a speech straight," which stamps the poet of all time and things.

A friend of mine when walking by the side of the Kinnessburn saw a hawk chasing a bird ; he stood and watched them. As a last resort the poor lark flew into the opening of his vest ; he had hardly time to put up his hand to save it, when the hawk dashed against his breast and fell stunned—narrowly escaping being caught itself. Another friend told me he was in his room; the sash was up, suddenly—like a rifle bullet—first flew a linnet, then a hawk, into the room, and so eager was the hawk in pursuit it smashed the glass of a large picture hanging opposite the window—the panting linnet crouching in a corner of the room. The hawk fell, stunned, then glared first at his master man, then around at his narrow firmament, then flew to the window (which he had closed) and tried to escape. My friend captured both, and restored them to liberty—the one, I trust, to sing again sweetly on a whin, the other to carry out its mission assigned by Nature. It is not likely they would ever meet again. Another gentleman told me that, while walking in his garden, a sparrow flew down to his feet, when simultaneously a sparrow-hawk dashed against one of the iron clothes poles and fell dead. In June 1860, when walking on the links, near the Eden, I saw a hawk chasing a lark, which tried every wile to escape from its natural foe; it darted aside, then above it, wheeled, gyrated, dived, and soared until almost exhausted, and as Nature never gives talents or talons to man or hawk without a special purpose —for *use*—each moment brought the talons nearer the breast of the lark, and when just about to clutch it a strange deliverer appeared in the shape of a greedy carrion crow, which darted down upon the hawk with a hoarse caw! caw! and gave determined chase to the chaser, while the poor lark crouched close to my feet behind a bunch of bent. I allowed it to lie, as there was plenty of room for both of us. The incident so interested me that I penned a few verses on it:—

The hawk, just like a thief about to clutch
His prey—detected, slunk away with such
A cowed and coward, wavering, sidling mien,
That I, who watched them all, have seldom seen.

The poor lark dived behind the bent, and lay—
She cower'd and panted—but she did not pray.
For why? Because, in truth she had no need;
The crow, he was as bad, nay worse, indeed!

For as the carrion swept the links around,
He spied her offspring huddling on the ground,
And, with a greedy, chuckling, evil eye,
He gobbled up her brood and off did fly.

He saw her saviour pounce upon her young,
And, then, with pain her little heart was wrung,
To think the great all prey upon the small;
Alas! poor poverty is food for all!

I watched the crow chasing the hawk all the way over the Eden, till lost in the distance over Tentsmuir, in the direction of the "Old Fir Park Wood," where they both breed—hence their enmity. It is needless to say it was not pity for the lark, but enmity to the hawk, that actuated the carrion crow. But each one of us, man and bird, have a mission to fulfil. Then, as Burns says, let us

"Uphold the dignity of man
With soul erect;
And trust the universal plan
Will all protect."

On another occasion, when I was standing on the long pier, I saw a hawk skimming after a wagtail; like the lark, it tried every plan to elude the fatal clutch, as every creature does when death is after it; they dashed close past me, the hawk paying no heed, so eager in the chase. On diving over the side of the pier it made a rapid upward swoop, clutched the poor wagtail, then flew up over the old Kirkhill brae, and over the old Abbey wall to devour its prey in peace and solitude on the top of a tombstone—those well-meant but perishable mementoes of the dead, in the old Cathedral burying-ground, where the hawk of time hath preyed with such havoc upon the so-called universal Church of Rome, and its mockery of infallible priesthood.

The unerring clutch of the wagtail reminded me of Southey's true picture of his hero, Glaciadus, singling out a victim for his fatal arrow, thus—

"A keener glance
Darts not the hawk, when from the feather'd tribe
He marks his prey."

And if disturbed at its food, equally true is Tennyson when he says—

"The wild hawk stood with the down on his beak,
And stared."

One day, in May, I saw a male clutch a mavis from a hedge with both feet and fly off with it, quite low, for about 400 yards, then alight on the ground, and when I approached it flew off again, still flying low as if encumbered.

On January 5th, 1887, a man shot a hawk with a lark in its talons at the Kinness burn; they both fell. He took the lark from the dying hawk; the lark was alive but nearly all plucked, except the crown of the head and tail; it trembled all over; he put it in his pocket for heat and took it home, but it died in about an hour. This proves that the hawk does not always wait for death before plucking its victim, and yet it is part of a universal creation, based on mercy, benevolence, and love. Let moralists take a lesson, and sentiment pause before it condemns. Birds of prey, like natural storms, war, and disease in "Life's fitful fever," are part of Nature's great design, beyond our reach to grasp. An eye-witness says :—

> "I saw a singular occurrence between a sparrow-hawk and a hen—the mother of a brood of chickens. Her happiness was suddenly disturbed by that enemy of the hencoop, the bloodthirsty sparrow-hawk. It is a fact that the ardour of this bird is so great that all its faculties are absorbed, and heedless of everything but the prey it is trying to capture. Be that as it may, the extreme audacity of this hawk may be imagined, when I say it swooped down and selected a victim from the brood before my eyes, and bore it off to a neighbouring elm tree. But much as we admire the headlong courage of this little handsome thief, our admiration must be increased for the hen, for, without a moment's hesitation she flew after the hawk, to rescue her chicken from the clutch of its enemy ; the onslaught was so sudden and furious that the hawk dropped the chick, which fell to the ground not much injured. The heroic mother soon smoothed her child, and if gratitude forms part of fowl life, that chicken would be grateful to its mother for rescuing it from the very jaws of death."

The hen was a better protector to her chicken than Shakespeare says the Duke of Gloster was to the young King :—

York—"Wer't not all one, an empty eagle were set
To guard the chicken from a hungry kite,
As place Duke Humphrey for the King's protector?
So the poor chicken should be sure of death."—*Henry VI.*

The sparrow-hawk is common here, frequenting the lower grounds skirting plantations. Small birds of all kinds are its prey, from the golden-crested wren to the blackbird ; while the female, from its greater size, attacks lapwings, snipes, pigeons and partridges, which she strikes as she skims over the fields ; chickens, ducklings, leverets, and young rabbits are also set down in its bill of fare, in search of which it flies low, and skims with great speed, pouncing on its prey with unerring aim. It makes its shallow nest on low as well as high trees, generally spruce and Scotch firs, of slender twigs, very like the cushat's, with generally a few chips of Scotch fir bark in the centre. It is said to occupy the deserted nest of a crow or wood pigeon, but I never found this, and I have climbed up to many nests. My experience is, that it makes its own flimsy nest, although sometimes framed on the top of an old wood pigeon's or filled-up carrion crow's. It begins to lay about the middle of May, usually five eggs. Every schoolboy knows the colour—a bluish white ground, blotched with dark brown at the largest end, sometimes with a brown ring, and sometimes blotched or spotted all over. One I have is pale bluish-white, streaked with very light brown; but, like all coloured eggs, there are hardly two alike, although each species bears a general similarity—like the human face. They are generally pretty round, inclining to the shape of the owl's. The young are at first covered with white down, and fly about the end of June. They are easily distinguished the first year by being lighter in colour, and the bars on the breast less distinct than in the adult. As most of our ornithologists dispute about it making its own nest—including Lelley and M'Gillivray —I can make this clear from personal observation from my own note-books :—" On Saturday, May 29th, 1858, I ascertained the doubted fact of the sparrow-hawk making its own nest. I went over the Eden in a boat to Tentsmuir. On rambling through the muir in search of eggs I met the shepherd, who told me he knew several nests—one a hawk's—in the Old Fir Park. I went with him ; the nest was in the 'breek' of a stunted white birch tree, in an open part of the thinly-planted wood, near the outskirt ; it was ten feet up, the hawk was sitting on her eggs, her head away from us, and as we approached quietly over the soft grass, I shook the tree before she flew. She slipped off and skimmed away, keeping under the tops of the trees till out of sight. I went up and carefully inspected this nest. It was 14½ inches extreme diameter and 8¾ by 2¼ deep inside, very like a wood pigeon's, only a little larger, composed of hazel and birch twigs, and one or two larch and Scotch fir, lined with finer twigs and one or two of her own small feathers and a sprinkling of her down, with a few of the characteristic chips of Scotch fir bark —all recently formed. He told me that he *saw her making her nest*, and that she laid her first egg on Saturday, 22nd, the second on the 23rd, the third on the 24th, the fourth on the 25th, and the fifth on Wednesday, the 26th of May, and began to sit on Friday, the 28th—the day before I wrote this. On Thursday, the 27th he inspected the nest ; there was then no down in it, so she must have plucked it off when she began to sit." To corroborate this :—On the 22nd, the day the shepherd noted this hawk laying her first egg, I climbed up to another hawk's nest, in a strip of wood (now cut down) near Allanhill, about 2½ miles from St Andrews. It was on a spruce fir, 35 feet up, and also entirely new, of twigs, some moss, wool, and fur, and a few hairs sparsely blended, and the characteristic few pieces of Scotch fir bark. There were five eggs in it. They varied much in colour and shape from the Tentsmuir ones. They were 1¾ inches by 1¼, the others were 1⅝ by 1⅜. I got other three nests in May—on the 13th and 14th—the same year :

two with five eggs, the other with one, all on spruce firs, about the middle of the strips of wood. So out of five nests, the same year, I got four of them with five eggs each—the other in course of laying—which proves the usual number laid. These notes being written at the time, and all the nests personally inspected, is sufficient data for the number of eggs and time in laying, although I have got eggs in June. From another note—"May 14, 1864, I got a nest on a Scotch fir tree in Kinglassie wood, about three miles from St Andrews. The bird flew off when I struck the tree; I climbed up, and found three fresh eggs. There were two old nests—one above the other, like carrion crow's or wood pigeon's. The top one, in which I got the eggs, was a new formation, built *on* and *above* the second one. The twigs were quite fresh, newly arranged, no lining inside but some smaller twigs, and the never-failing few chips of fir tree bark, which, on inspecting the tree, could not have fallen in by chance, and seemed to be a characteristic of the hawk's nest. It was quite shallow, 12 inches across and only 1½ deep in the hollow—not much larger than a wood pigeon's. I took the three eggs, and went back next Saturday, the 21st; the hawk, more wary this time, slipped off before I approached. There was one egg in the nest, which I left, and never went back to disturb her incubation."

To prove that the hawk lays again in the same nest after being harried, I give the following fact told by the young man who did it:—"In the beginning of May 1860, at Lathockar Wood, about four miles from St Andrews, a young lad who lived in the district, and attending Madras College, harried a hawk's nest on Saturday, the 10th. He took the three eggs and brought them to St Andrews on the 12th, and gave them to his schoolfellows, who were collecting eggs (a rage at that time). Being at school all week he went next Saturday and found other three eggs in the nest, which he also took. This he repeated for five consecutive Saturdays, and took fifteen eggs from the same nest—no doubt all layed by the same bird." This shows with what tenacity the sparrow-hawk clings to her nest, which it would not likely do if its eggs were layed in the nest of another bird.

About fifty years ago, in May 1842, I was standing in the outskirts of a large wood, called "Stravithie Wood," all since cut down. Suddenly I heard the hoarse caw! of a carrion crow. Then another and another caw! caw! until it seemed that a host of carrion crows were assembling above my head. Their deep bass notes deepened into one loud chorus of caw! caw! which was joined by the shrill klee! klee! klee! of a sparrow-hawk. Running to the place, I found about a score of crows upon one female sparrow-hawk. They were tearing and flapping at her, she on her back defending herself with her talons and beak; but the powerful bills of her assailants would soon have ended the strife had I not rushed in the nick of time to save her. The crows were so busy that I was amongst them before they heeded me. I knocked several down, kicked others aside, while the hawk lay on her back panting, with outstretched legs and claws and open beak. I knocked them all away, their little black eyes glistening with rage, both at me and the hawk, as, with another hoarse caw of defiance, they flew reluctantly away. Curiously, she never tried to bite or clutch me, but allowed me to lift her up, as if glad to be saved from her natural foes, quite heedless whether I was an enemy or not—instinctively feeling I had saved her life. Thinking her nest was near, and the likely cause of the fray, I looked up and there it was on an easily-climbed Scotch fir tree. I put the hawk in my vest, buttoned my jacket, and climbed up. I found five very deep-sitten eggs (as afterwards proved). I knew it was no use leaving the hawk or her eggs to the mercies of her deadly enemies, so I brought them home, thinking she might hatch them. I made a nest inside a toolhouse in the garden, placed her on the eggs, and retired. She allowed me, as if she understood what I meant. I gave her food and kept her two days; but she neither sat on her eggs nor tasted food. So, pitying the poor bird, I took her in my hand (still quite tame) and let her away to live, love, fight, and kill again in her natural element. She flew, like a homer pigeon, high in the air, as if to see where she was, then bore steadily away for Stravithie, where she came from, which does away with the theory of the hawk's shortness of sight. This incident proves the deadly hostility the carrion crow bears the sparrow-hawk, which I have repeatedly seen borne out since, and is worth recording on that account. The sparrow-hawk knows it is hated by all small birds, therefore, like all thieves, it approaches silently and stealthily over hedges and dykes, and skims low over the ground, or sits on a dyke or fence or solitary tree to reconnoitre before making its deadly swoop; and although its wings are about four inches shorter than the falcon's, they are broad and long enough for the most rapid evolutions, while its long tail is in the air what the long tail of the shark is in the sea. There, see it sweeping and peering over that grass field a few feet from the ground; then over the low hedge; a few minutes on the fence rail; then, with an upward bend, perches on that old ash tree (the last to put on its tardy livery of green). It sits at first straight up, as a falcon used to sit on the wrist, with hood and jesses on. But see, it bends forward, raises its wings, then swoops down with lightning speed. What commotion amongst the sparrows in that hedge, started by the clear twink! twink! of the bonnie sprightly chaffinch. But what cares the daring little robber for the sharp warning of the tiny, officious, feathered police. It snatches its victim, and is off as silently as it came, with its prey in its grasp, followed by the clamour and false courage of a hundred noisy little throats—the clear twink! twink! heard above the yelping of the sparrows. So swift and unerring is the swoop of this bold little hawk that I have seen it rush headlong into a hedge, and emerge on the other side with a thrush in its talons. It has been known to seize a lark from the deck of a passenger steamer, even at the feet of the passengers. When gliding over the fields it clutches birds, mice, weasels, young rabbits, leverets, and every living creature it comes across, even seizing full-grown rabbits. Mr Hepburn saw one fix its talons into an old rabbit, which ran like the deer with the eagle, till both were caught in a brier bush—and the hawk only flew off when the gentleman shouted. It will sometimes fly rapidly round bushes and hedges—like a huntsman beating a cover—where a flock of sparrows have taken shelter, till one shows itself, which it clutches, then off like a shot.

Mr Weir, a painstaking naturalist, says—"From a hut, formed by the branches of trees, I watched a pair of hawks feeding their half-fledged young. The female sat upon them. The male alighted on the top of a tree forty yards off, with a bird in his grasp. She went and took it from him and divided it among her young. He sometimes brought a blackbird or a mavis, but oftener a lark, a yellow bunting, or a chaffinch." The sparrow-hawk is, I think, a far more natural way of keeping down blackbirds and other thieves of the orchard than sparrow-hail. The same gentleman watched another pair early one morning for five hours. The male, like the other, always alighted on the top of a tree some distance from the nest, with a bird in his claws, and called on his mate, who came and took it from him in her bill. He shot her as she was carrying it to her young, at nine o'clock. He went back at six in the evening with a boy to climb the tree. The young hawks were almost suffocated by the dead birds about them. The boy threw down no less than sixteen larks, yellow hammers, chaffinches, hedge sparrows, and green linnets. He took the young hawks home and fed them, as they were starving in the midst of plenty, the mother not being there to divide it. The male no doubt, like the head of the human family, considered he had done his share of the marriage contract by procuring the food, leaving his better-half to dispose of it at home—her natural and proper sphere; not like political female males, who spend their time and mar domestic duties, as well as public ones, at public boards and canvassing for votes. The male at first waited and wondered why his wife did not come at his call to fulfil her part of the matrimonial duties; but, impelled by Nature to perform his share when she did not come to him, he went home with the birds himself, never dreaming that his abundant care, instead of feeding his young, was smothering them. Mr Selby says—"In a nest, with five young hawks, I found a lapwing, two blackbirds, a thrush, and two green linnets, recently killed and partly plucked." And, quite recently, Adam Cleghorn, writing to the *Dundee News*, from Marcus, Forfar, on March 14th, 1888, says—

> "On June 23rd, 1887, a female sparrow-hawk was shot near her nest. Two days afterwards, on the 25th, a boy climbed the tree to see what was in the nest. He found two young kawks and a number of dead birds, no doubt intended for food to them. Having a tame owl at home, he took the dead birds, but left the young hawks. Next morning the gentleman who shot the hawk, along with a friend, determined to destroy the nest and its callow brood, so they shot at it until it was brought down, when the astonishing number of forty-seven freshly-killed birds were found to have been brought to the nest. We counted the birds, and, taking an interest in these matters, I append the names and numbers of each species of bird found:—One young pheasant, six blackbirds, four sparrows, five robins, five chaffinches, six thrushes, four linnets, seven tits of various kinds, two wrens, two yellow hammers, two hedge sparrows, and three larks—in all forty-seven birds. They were both young and old birds, and the feathers plucked off, or nearly so, but few of them touched in any other way. From this I infer that the female only tears the prey to pieces, while the male captures and brings it to the nest to supply the wants of the mother and her young."

From the disparity in size of the male and female, and difference in plumage towards maturity, no bird was more liable to be split up into different species than the sparrow-hawk (except the hen harrier)—some authors, in their anxiety to add to science, creating or inventing more species than honest Nature ever made. But time has shown that we have only *one* bold little sparrow-hawk—not only in Fife, but in the British Isles. Like all birds, it suits itself to circumstances in making its shallow nest. In the Orkneys, where there are few trees, it breeds on the ledges of rocks. It lives about forty years, if not killed before its time. In the days of Falconry it was a great favourite, from its extreme boldness, and much used in the capture of partridges, quails, pigeons, blackbirds, larks, &c. It was held in great veneration by the Egyptians, as it was the emblem of their god Osiris. The Greeks also consecrated it to Apollo.

SUB-FAMILY III. FALCONINA.

The Jer or Gyr Falcon.

(Falco Gyrfalco.) Linn. *(Falco Islandicus.) Lath.*

> " But what a point, my lord, your falcon made,
> And what a pitch she flew above the rest !
> To see how God in all His creatures works !
> Yea, man and birds are fain of climbing high."—*Henry VI.*

This handsome bird stands at the head of the true falcons—the sub-family *Falconina*. The bill is short and strong, curving from the base. The upper mandible is armed with an acute tooth on each side near the point, which fits into a notch in the lower one. The wings are long and pointed; the thighs are long; the tarsi short, compared with the hawk's. The middle toe is united to the outer one by a membrane at their base; it has a joint more than the others—a wise, if cruel, provision of Nature—for the extra joint enables it to clutch round to meet the hind toe, which, though shorter than the rest, is armed with a sharp-pointed claw longer than the others. The hawks and all birds of prey have the same provision for a better grasp. Being easier trained than the hawks or harriers, and their mode of capturing their prey by outsoaring them more interesting, this sub-family were greater favourites with falconers than the wilder, short-winged hawks—hence called the "noble birds of prey," in distinction to the so-called "ignoble" ones. From its extreme rarity in Britain the gyr falcon was not so much used in falconry as its congener, the peregrine. The gyr is entitled to stand at the head of its family, as it is not only the most powerful, but, I may say, the most beautiful of its genus. The general colour is white, the upper parts marked with dark grey spots or streaks. The bill is pale blue, darker at the point, and yellow at the base. The legs and feet are pale yellow; claws black; the irides reddish-brown. The wings reach to 1½ inches from the end of the tail. Like the rest the female is the largest, about 23½ inches long by 51 inches across the wings, against 21 and 47 inches in the male. It neither breeds nor is found in Fife—rarely even in Scotland, except far north, and in the Orkney and Shetland Isles, where it forms its nest, on cliffs, made of sticks and roots, lined with wool or small twigs, seaweed or moss. The nest is flat and about two feet in diameter. It lays in the end of May from three to five eggs, larger and lighter coloured than those of the peregrine—2⅜ inches long by 1¾. The colour is light brown, freckled all over with darker spots; sometimes nearly white, like itself, freckled at the largest end. It is a native of northern countries, as if its plumage took the hue of the snow. It is often found in Norway, Sweden, Russia, and Iceland (from which it takes its name *Islandicus*), in Greenland, Labrador, and the fur countries about Hudson's Bay. In the days of falconry the best birds came from Iceland. It was more difficult to reclaim than the peregrine, but once trained was of more value than its darker brother. It was trained to hunt such game as herons, wild geese, and the larger quarries. Its flight resembles that of the peregrine, but more elevated, majestic, and rapid. Its mode of attack is to outsoar its prey, then swoop down like a thunderbolt upon it—the term "noble" birds of prey being taken from the height at which the long-winged falcons fly, in distinction to the lower height of the short-winged hawks, which fly straight at their game. In Labrador their chief prey is the Arctic puffin, which breeds in burrows. They hover high in the air above the puffins, almost motionless—like a kestrel over a mouse—watching the proper moment to close their wings to descend like a stone—almost perpendicular—down on their unsuspecting victim standing at the mouth of its burrow, unaware of danger; like an unprincipled trustee who is chief creditor on a sequestrated estate. The gyr falcon may have been in Shakespeare's mind when he made King Henry praise the Duke of Gloster's falcon (when Lord Protector of England), which gave rise to such ill-will amongst his designing courtiers, Queen Margaret and Cardinal Beaufort—

Q. Mar. "Believe me, lords, for, flying at the brook,
I saw not better sport these seven years' day.
K. Hen. But what a point, my lord, your falcon made,
And what a pitch she flew above the rest!
To see how God in all His creatures works!
Yea, man and birds are fain of climbing high.

Suf. No marvel, an' it like your majesty,
My Lord Protector's hawks do tower so well;
They know their master loves to be aloft,
And bears his thoughts above his falcon's pitch.
Glo. My lord, 'tis but a base *ignoble* mind
That mounts no higher than a bird can soar.
Card. I thought as much; he'd be above the clouds.
Glo. Aye, my Lord Cardinal: how think you by that?
Were it not good, your grace could fly to heaven?
K. Hen. The treasury of everlasting joy!
Card. Thy heaven is on earth; thine eyes and thoughts
Bent on a crown—the treasure of thy heart;
Pernicious protector, dangerous peer,
That smooth'st it so with king and commonweal!
Glo. What, Cardinal, is your priesthood grown peremptory?
Churchmen so hot? good uncle, hide such malice;
With such holiness can you do it?"—*Henry VI.*

The gyr falcon was augmented into several species by imperfect knowledge, confounding immature plumage with different birds. Although this snowy native of the land of ice is not found in Fife, still, as a "big white falcon" was seen here for several days, about thirty years ago—probably from Norway—like a lost traveller across the North Sea—I welcome it to a place in this little history of our birds.

THE PEREGRINE FALCON *(Falco Peregrinus.) Linn.*

"As confident as is the falcon's flight
Against a bird, do I with Mowbray fight."—*King Richard II.*

This bird takes its name from *Peregrinus*—a wanderer. Next to the gyr falcon it is the most powerful of our British falcons. It breeds on the Island of May and the Bass Rock, also on the cliffs near Tantallon Castle, St Abb's Head, and the Red Head. Wherever there are high cliffs the peregrine may be found, but it is only indigenous in rocky or mountainous districts—the Highlands and Northern Isles of Scotland being its favourite haunts. It does not breed on trees—no matter how high, but selects a high cliff skirting the coast or inland, although its nest has been got on steeples, and on Antwerp Cathedral. It breeds in Fife at Kincraig, near Earlsferry; also on the High Rock at Newburgh, the Lomonds, and on Benarty Rock, near Kinross. Like the rest of its family it is tenacious of its haunts, and returns year after year though its nest be harried. It lays in April, generally three or four eggs—rarely five. It sits a month.

The young fly about in the end of June. At first they are covered with white down, grow rapidly, and when three months' old are as large as the old birds. The eggs are about 2 inches by 1⅝ inches, a little less and much darker than the gyr falcon's —rusty-red, spotted and blotched with darker brown, like the kestrel's; but, as already said, all eggs vary in size and colour. Their nests also vary—from a mere hollow in the rock to the repairing of a bulky old raven's nest—from a few twigs or bones, gathered by itself, to a pile of sticks and plants two feet across. On the Bass Rock, where there are no sticks, it is made of withered grass and moss. Some ornithologists doubt if it forms its own nest, but all birds and other creatures do so, more or less—from the scrape of the plover to the beautiful structures of the chaffinch or golden-crested wren. For instance, I have found a jackdaw's in a rabbit's burrow on a moor, as well as in a hole in the steeples of the city.

As usual with birds of prey the female is largest, being about 19½ inches from tip of beak to end of tail, and 42½ inches in extent of wings; the male 16½ and 36½ inches. The wings are long and powerful; when closed their points extend to near the end of the tail; its legs and toes are also very strong, the first and second claw being fully an inch long. But everything about this symmetrical and beautiful bird denotes perfection for the purpose Nature designed it. The speed of this perfect winged messenger of death when in pursuit of prey is almost incredible. It will fly at the rate of 150 miles an hour—a rate which no railway can touch—and keep it up till its object is attained. The great impetus, at such a speed, accounts for the frightful tear when it strikes its quarry—sometimes ripping up a grouse, blackcock, or mallard from vent to breast-bone by its hind claws, as if done by a butcher's knife. One belonging to King Henry of Navarre, with his name engraved on its varvels, escaped from Fontainbleau, in 1574, and was caught in Malta within twenty-four hours—a distance of 1400 miles, and, as the falcon never flies by night, the bird must have flown at the rate of 100 miles an hour at least. But even a snipe when alarmed can fly at the rate of a mile a minute. But, besides their great speed, it is unaccountable the instinctive power that enables birds to fly thousands of miles straight to their new homes. It cannot be scent with them, any more than scent that makes the little snowdrop or crocus leave the dark confines of mother earth to peep up and catch the first glint of the wintry sun. And I cannot help thinking that the marvellous faculty which birds of prey have in discovering their food at almost incredible altitudes is due to their piercing eyesight. There may be some other faculty or instinct which enables vultures or buzzards to detect their carrion prey; but whoever has seen a falcon or a golden eagle from a speck in the clouds, fall like a thunderbolt to within thirty yards of the ground, then hover for a few seconds above their quarry before the final plunge, cannot doubt it was their eyes that impelled their actions.

The peregrine was the typical bird of falconry, from which the sport derived its name. The female, being largest and most powerful, was called the *Falcon;* the male, the *Tercel.* The one was flown at herons, geese, ducks, and the larger game; the other at grouse, partridges, quails, teals, woodcocks, pigeons, and the smaller birds. They were the most noted of all the "noble" or *high-soaring* birds of prey, from which their nobility was derived, which Shakespeare shows in the dispute between the Earls of Suffolk and Somerset, upon some nice point of law, in "Henry VI."—

Suf. "'Faith, I have been a truant in the law;
And never yet could frame my will to it,
And, therefore, frame the law unto my will.
Som. Judge you, my lord of Warwick, then, between us.
War. *Between two hawks, which flies the higher pitch;*
Between two dogs, which hath the deeper mouth;
Between two horses, which doth bear him best;
Between two girls, which hath the merriest eye.
I have, perhaps, some shallow spirit of judgment,
But in these sharp quillets of the law,
Good faith, I am no wiser than a daw."

In "Taming of the Shrew" he also says—

"Dost thou love hawking? Thou hast *hawks will soar*
Above the morning lark."

And in "Triolus and Cressida," when old Pandarus brings them together to kiss each other, he shows the distinction in name of the male and female—

Pan. "Alas the day, how loath you are to offend daylight! an' 'twere dark, you'd close sooner. So, so; rub on; and kiss the mistress. How now, a kiss in fee-farm! build there, carpenter; the air is sweet. Nay, you shall fight your hearts out, ere I part you. The *Falcon* as the *Tercel, for all the ducks i' the river:* go to, go to."

Flying at wild ducks was a favourite sport with falconers, and Shakespeare means to show that at kissing the falcon was as good as the tercel.

When ill-trained it was called a "haggard" or "wild-hawk;" when taken young and well-trained, a "gentle falcon." Hence, in his fit of jealousy of Desdemona, Othello fiercely exclaims—

"If I do *prove her haggard*
Though that her jesses * were my dear heart-strings,
I'd whistle her off, and let her down the wind
To prey at fortune."

And, in "Twelfth Night," Viola says of the Clown—

"This fellow's wise enough to play the fool;
And, to do that well, craves a kind of wit:
He must observe their mood on whom he jests,
And, *like the haggard*, check † at every feather
That comes before his eye."

And Tennyson, in his poem of "The Falcon," draws a fine picture of the well-trained bird, the "gentle falcon" (hence, possibly, the *gentle* woman), when he says—

"My princess of the clouds—my plumed purveyor—
My far-eyed queen of the winds, thou canst soar
Beyond the morning lark, and, howsoe'er
Thy quarry wind and wheel, swoop down upon him
Eagle-like—lightning-like—strike, make his feathers
Glance in mid-heaven."

The usual way to tame a falcon was to "watch" it; that is, to keep it from sleep until tame; and how finely Shakespeare introduces this fact when he makes even the "gentle Desdemona" say to Cassio, when innocently undertaking to see him reinstalled in his lieutenancy—

"Before Emilia here,
I give thee warrant of thy place: assure thee,
If I do vow a friendship, I'll perform it
To the last article: my lord shall never rest;
I'll watch him tame, and talk him out of patience;
His bed shall seem a school, his board a shrift;
I'll intermingle everything he does
With Cassio's suit: Therefore be merry, Cassio,
For thy solicitor shall rather die
Than give thy cause away."

And also, in the "Taming of the Shrew," he makes Petruchio say of Catherine—

"My falcon now is sharp, and passing empty,
And, till she stoop, she must not be full-gorged,
For then she never looks upon her lure.
Another way I have to *tame my haggard*,
To make her come, and know her keeper's call;
That is,—*to watch her as we watch these kites*,
That bate, ‡ and beat, and will not be obedient."

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* *Jesses*—straps. † *Check*—fly. ‡ *Bate*—flutter.

He also says—

"And I have loved this proud, disdainful *haggard*."

But the want of sleep, which tames the bird, would make the man insane. For Shakespeare truly calls it the "great restorer," the "great physician," sleep—

"The innocent sleep;
Sleep, that knits up the ravell'd sleave of care;
The death of each day's life, sore labour's bath;
Balm of hurt minds, great Nature's second course;
Chief nourisher in life's feast."

The peregrine is perhaps the most courageous of all our birds. It will attack even the golden eagle if near its nest. A pair will drive the king of birds away. But I have seen a pair of missel thrushes attack a sparrow-hawk; and, for that part of it, this pugnacious thrush would attack the peregrine if near its nest; for a female missel thrush once coolly left her nest and eggs and dashed herself against my own face, when climbing up a tall poplar to its nest. And even here is Shakespeare true to Nature, for he makes Clifford say to over-pious King Henry VI.—

"My gracious liege, this too much lenity
And harmful pity must be laid aside.
To whom do lions cast their gentle looks?
Not to the beast that would usurp their den.
Whose hand is that the forest bear doth lick?
Not his that spoils her young before her face.
Who 'scapes the lurking serpent's mortal sting?
Not he that sets his foot upon her back.
The smallest worm will turn, being trodden on,
And doves will peck, in safeguard of their brood.
Unreasonable creatures feed their young:
And though man's face be fearful to their eyes,
Yet, in protection of their tender ones,
Who hath not seen them (even with those wings
Which sometimes they have used with fearful flight)
Make war with him that climb'd unto their nest,
Offering their own lives in their young's defence?
For shame, my liege, make them your precedent!"

He also makes Lady Macduff say to her son and Rosse, after Macduff's flight—

"What had he done to make him fly the land?
His flight was madness. When our actions do not,
Our fears do make us traitors. He loves us not;
He wants the natural touch; for the poor wren,
The most diminutive of birds, will fight,
Her young ones in the nest, against the owl.
All is the fear, and nothing is the love;
As little is the wisdom, where the flight,
So runs against all reason."

All which just shows the many-sided beauties of Nature's poet.

The peregrine does not chase its prey like the hawks or harriers—on the same level—like a hound after a hare; but flies above it, outsoars, and falls like a shot down upon its victim. There is no limit to its activity in air. It comes from such a height, and at such a speed, as if a flash of feathered lightning glanced from the clouds—so sudden and unexpected is its blow. Its usual mode is to fly straight at its prey—but above it—with rapid beats of its wings, until the time to strike; then closing its long pinions, like a gannet before plunging into the sea, dashes almost perpendicularly down to within a few feet; then, with the speed of the wind, swoops, and rips up its victim with its outstretched claws, and carries it off; or, if too heavy, presses it obliquely to the ground and devours it on the spot—unless when crossing water, when it is dropped to save itself. It seldom floats or sails in circles like the eagles or buzzards, but sometimes hovers like the kestrel. Its favourite food is grouse, woodcock, and partridges, rabbits and young hares. It is said a brood of young peregrines will consume 300 brace of grouse. This, like the "drink bill" of last year, 1891, viz., £141,250,000 for the United Kingdom, may be interesting to those who neither sport nor drink, as representing so much money lost to other pursuits; but, if meant as a reflection upon Nature or her universal plan, it is not only blaming the creature but the Creator of the bird, the malt, and the man. Some may say that so many brace killed by the peregrine was the best proof of a superabundance of grouse; as so many gallons of whisky and barrels of beer consumed was the best proof of plenty of trade and high wages to be able to buy the drink. For

> 'Tis true, a hawk will skim the air,
> And strike the sparrow down;
> Yet all have universal care
> To live and love aroun'.

For Nature, like a wise merchant, is regulated by supply and demand. Where the carcase is, there will the vultures be also; and where the herrings are, there will be the porpoise, the gannet, and the gull; even where the dirt is, there will be the vermin.

> "And seeing ignorance is the curse of God,
> Knowledge is the wing wherewith we fly to heaven."—*Henry VI.*

An apt application to faddists, who, because they are virtuous, think the world shall have no more cakes and ale.

If its nest is on the coast, then all sort of sea birds are its prey, not disdaining to snatch a young gull or gulliemot from its nest to be devoured in its own—fulfilling thus the broad law of universal Nature. An instance of its rapacity is given in the *Magazine of Zoology*. A gentleman, when exercising his dogs just before grouse shooting, in the end of July, saw them point, and, on coming up, he startled a male peregrine off a grouse newly killed, and near the same place a female also off another. Although he lifted both birds, the falcons hovered about, and, on the rest of the covey being sprung by the dogs, four more birds were struck down by them; thus, three brace were got by means of these wild falcons—"more than had ever been got out of a pack of grouse by his trained ones." It sometimes follows the sportsman and his dogs on the moors, and strikes down a grouse before their eyes. To prove its power to carry a bird as heavy as itself, and fly miles with it, Mr Skene's gamekeeper (of Pitlour, in Fife) took an old cock red grouse out of a nest on the Island of May, where no grouse are near; but it can carry black grouse and pheasants a long way to its nest.

When wandering by the side of Loch Brora, in Sutherlandshire, the other year, I was struck with the absence of birds of prey; and when about half-way up the strath or glen, on going through a clump of scraggy white birch trees, at the foot of a huge rock, I met a gamekeeper. "What is the name of that immense rock?" I asked. "That is Carrol Rock," he said. "How high is it? it is a great height," I said. "Why, yes, it is almost 1,500 feet; but its vast size takes away its height, and one cannot measure it by the eye," he said. "A fine place for a golden eagle or a peregrine falcon's nest," I remarked. "A peregrine falcon is sitting on eggs up there just now," he replied, pointing up to the rock. "Where?" I eagerly asked. "Do you see that overhanging piece of rock up there? but it is so very high you'll not make it out; I wish I had my glass," he obligingly said. I tried to make out the place—a mere dark rent in the rock, at least 1,000 feet up, which was all I could see. "We tried to get at the nest last year," he said. "We drove a thick tree in up at the top, away from the edge, then let a rope down to where we are. I tried to climb up the face of the rock with the help of the rope till I came to that black strip, which is at least 12 feet in from the overhanging brow of the rock above. I tried to swing myself in, but it was no use: I could not reach it, so had to give it up, fairly baffled. I could neither get at them with shot nor hand. But," said he, "besides the peregrines, eight or nine ravens come to that rock and roost every night." "Are they not carrion crows?" I doubtingly said. "Oh, dear, no! neither carrions nor hoodies, but the big, glossy, black ravens. I shot two of them from the top last Friday, as they were flying over, and they fell amongst these huge boulders up there." We went up and gave a brief search amongst the boulders, birch trees, and heather; but it was afternoon: he had a long way to go over the mountains, and I had a long journey before me, for I wanted to go round the head of the loch by Gordon Bush Lodge and back by the other side to the little town of Brora—about 20 miles. But I regretted not finding the ravens, as I had not one in my collection at home. On going a little further with him, I picked up a hooded crow. "I stamped that fellow two days ago with a dead rabbit; you see its leg is broken," he said. From this I saw he knew about birds. I told him I noticed some little grebes, or dabchicks, on the loch. He pointed out some mergansers and gooseanders, and some rare ducks, fishing in the loch, and said they bred further up among the hills. He seemed to know the different birds. "I am going to strike up here through the wood," he said; "but before I go I'll let you see a large red deer stag lying dead. His leg was broken by a shot last year; but though we often saw him limping with others, he kept out of range ever since." He showed me the broken bone of the thigh, which Nature had united again, but left it weak, for the stag was very thin—a penalty of so-called sport. This poor animal had limped for a year; often seen, yet kept out of range; and at last had come to the sheltered side of this secluded loch to die. My agreeable companion was an English gamekeeper. His description of Carrol Rock, its vast height, and his inability to reach the falcon's nest, reminded me of Wordsworth's lines in his "Excursion"—

> "A pair of falcons, wheeling on the wing,
> In clamorous agitation, round the crest
> Of a tall rock—their airy citadel."

Like all birds of prey (including the human ones), the peregrine is a solitary bird, and carries on its depredations alone, although in the breeding time a pair may be seen hunting together, and their harsh screams heard in chorus. It is very shy and difficult to shoot; but when once its nest is known they seldom escape, like those on Carrol Rock. The general colour of the old bird is a deep bluish lead colour, barred with black on the back, hence it was called the "blue hawk," and, when immature, the "red hawk;" the crown of the head and cheeks nearly black; the wing feathers are mouse-coloured, with large oval white spots underneath; the tail is ash-coloured, spotted and tipped with brown; the under parts—from the throat to the bottom of the breast—are yellowish white, with a dark streak on each shaft, the rest beautifully barred with brown; the bill is pale blue, tipped with black, short, strong, and much curved; the iris, dark hazel; the thighs, like all falcons, are long and muscular; the tarsi, short and strong, are, like the feet, greenish yellow; toes, long; the claws are also very long, much hooked, and sharp.

In 1865 I got a young one from a nest of four on the Island of May. I had it a year. At first I kept it in a large box, with iron bars, and fed it with all sorts of flesh, then I let it out with a long string attached to its leg. Ultimately I set it free to fly about the garden. It grew quite tame, and flew to me for food. I missed it for two days, but saw it on the third flying about the ruins of the Cathedral, true to its instinct, seeking the highest places. I cried, "Klee! klee! klee!" my usual call. It knew me, although on the highest pinnacle of the east gable turret. It flew down and alighted on my head, and thus gladly returned with me to the garden in North Street, not far away. Afraid of losing it after this, I kept it in a large outhouse; but one day it got out, and although some people saw it on cliffs near the harbour, it disappeared—perhaps was shot. I am certain I could have made that bird an agreeable companion in the fields, and might have trained it to hawk for birds, it was so docile. As a proof that tame peregrines, on regaining their freedom, can hunt for themselves and fulfil the duties of wild ones, the *Scotsman* of April 28th, 1888, says:—

> "While the gamekeepers on the estate of Dunira, near Comrie (Perthshire), were out the other day they shot a pair of peregrine falcons. One of them had a small leather belt on each leg, and attached to one of the belts was a very small bell, which showed that the bird was a captive at one time. It would be interesting to know who the owner had been, and what part of the country it came from."

So it would, as the peregrine wanders far. On January 1861, when Mr Berwick, farmer, Reres (near Eden), was looking at my collection of stuffed birds, a large sparrow-hawk arrested his attention. "I shot a hawk last week at least three times as big as that fellow," he said. "Where did you shoot it? and what have you done with it?"—like an inquisitive young Miss, with two questions at one time—I eagerly asked, as I had not then a peregrine in my collection, and guessed it was one. "I shot it on the sands on the north side of Eden five or six days ago, and took it home to Reres, where it lies in the yard. It is of no earthly use to me; you can have it if you want it," he said. I sent a messenger by rail at once to Guardbridge, before Mr Berwick got home. On calling at the farm and telling his errand—"What!" said "Old Schoonie Hill"—as Mr Berwick's father was called—"have you come all the way frae St Andrews for that ugly brute o' a hawk?" After being hospitably treated—like the players in Hamlet—the lad returned with the "ugly brute o' a hawk"—a fine female peregrine in its second year's plumage (in excellent order, for the frost had preserved it.) The only injury was the point of its bill shot away and a pellet through its brain. I stuffed it, and have it still. The lesson from this is that many rare birds are lost through carelessness, not knowing their worth, and cast away merely because not eatable. An occasional rare bird is not heavy to carry, and will amply repay the carrier.

Another fine specimen was shot at Eden in 1863, with a snipe in its talons; and other three seen also at Eden about the same time, so they are not so very rare about St Andrews—the Eden being within two miles. In 1864 I got a fine old male, shot at Cambo, near the sea, which I also stuffed, and still have.

An intelligent naturalist here told me that when living at Montrose—returning one night from otter hunting—he saw a dark object projecting on a high rock, known as the "Elephant." He fired, and brought down a fine peregrine, only winged. He clutched it, but it sent its claws into his hand. His companion threw his napkin over its head to keep it from using its beak, then one by one took its claws out from their painful grasp. He then turned in the toes and claws like a ball, and held it by the feet quite harmless. Sometimes the peregrine strikes with such force that if it misses its clutch it can scarcely relax its own talons. He told me there was a nest every year on the Red Head. He went one day with a companion to get some of the young ones. The nest could not be seen from below, but by standing on a projecting ledge on the top of the cliff they saw the young ones far down on the ledge overhung by the cliff; they seemed like sparrows in the distance. They kept firing at them for a couple of hours—not to kill, but to frighten them—for their shot could not reach half-way down. At last one of them got frightened, and fell over to the foot of the rock, which he got and kept a year. He said the fishermen slung old pitchers and pans down to frighten them, and sometimes got one or two young ones by this. The one he had would eat three rooks in a day. But an old carrion crow was more than a match for it every way but one, which was to seize the crow's powerful beak with its talons and dig into the carrion's entrails with its own till out of breath, then it lay and panted on the ruin it had made—as you may have seen a lion or tiger do with a bone at feeding-time. He sometimes took its talons off the crow's beak; then what a scream the peregrine made, as if it knew it was no match for the crow otherwise in the cage. He put a jackdaw beside it—the cage was six feet square, with roosting spars—but although together for a day the daw always eluded it. For this feat he set the jackdaw free. It crossed the Esk after him by leaping on the tips of its wings and tail, although it could fly quite well. As the peregrine—like other long-winged birds—has a slight difficulty in rising from a level surface, this may have induced it to use this clumsy hopping method. Possibly several young birds bred on the coast lose their lives by falling into the sea, being unable to rise. The peregrine is widely distributed throughout Britain; but, unless in suitable localities, is by no means common, although I have got several about St Andrews.

From the many quotations from Shakespeare about this falcon, it is evident the "all-time poet" knew it thoroughly, and used it beautifully, sometimes savagely—like itself—as in "Measure for Measure," when he makes the pure-souled advocate of virtue, Isabella, exclaim against the impure-minded Deputy-Judge, Angelo:—

Isa. "This outward-sainted deputy,
Whose settled visage and deliberate word
Nips youth i' the head, and follies doth enmew,
As *falcon doth the fowl*, is yet a devil;
His filth within being cast, he would appear
A pond as deep as hell.
Claud. The princely Angelo?
Isa. O, 'tis the cunning livery of hell,
The damnedst body to invest and cover
In princely guards. Dost thou think, Claudio,
If I would yield him my virginity,
Thou might'st be freed?"

Even in his early poems—as in the "Rape of Lucrece," when she wakes and finds Tarquin's one hand upon her breast, the other with his falchion gleaming above her—how tellingly he introduces it—

"Then Tarquin shakes aloft his Roman blade,
Which, *like a falcon towering in the skies*,

> *Coucheth the fowl below with his wings' shade,*
> Whose crooked beak threats if he mounts he dies;
> So, under his insulting falchion, lies
> Harmless Lucretia, marking what he tells
> *With trembling fear, as fowl hear falcon's bells.*"

And when the deed is done, how truly he says—

> "Pure Chastity is rifled of her store,
> And Lust, the thief, far poorer than before;
> Look, as the full-fed hound *or gorged hawk,*
> Unapt for tender smell *or speedy flight,*
> Make slow pursuit, or altogether baulk
> The prey wherein by nature they delight,
> So surfeit-taking Tarquin fares this night."

And in one of his doubtful plays, "The London Prodigal," the allusion to this bird in one of Flowerdale's speeches, I think, fathers itself—

> "I' faith, brother, like a mad, unbridl'd colt,
> Or *as a hawk that never stoop'd to lure.*
> The one must be tamed with an iron bit;
> *The other must be watched, or still she's wild.*
> Such is my son; a while let him be so,
> For counsel still is folly's deadly foe.
> I'll serve his youth, for youth must have his course,
> For, being restrain'd, it makes him ten times worse;
> His pride, his riot—all that may be nam'd—
> Time may recall, and all his madness tamed."

THE HOBBY. *(Falco Subuteo.) Linn.*

The hobby falcon is not, to my knowledge, found in Scotland, and rarely in England. In colour it resembles the peregrine; but much less, being about the size of the kestrel. It has all the characteristics of the falcons. It preys on small birds—chiefly larks—also on beetles, like the kestrel. In the time of falconry it was trained to hunt small birds, but from its rarity was not generally used; and I merely mention the hobby here as it stands in our list of British birds.

The Orange-Legged Falcon.

(Falco Vespertinus.) Linn.

Like the hobby, this beautiful little falcon is so extremely rare in Britain, that it does not come within the pale of our St Andrews birds; and I only introduce it here to preserve the link of British birds. It is smaller than the hobby—about the size of the merlin. Its general colour is greyish blue, and easily distinguished by its orange-tinted tarsi.

The Kestrel or Windhover.

(*Falco Tinnunculus*). *Linn.*

> "Below the lark the kestrel hovers,
> But lower still the beetle crawls;
> And down beside the wailing plovers
> Upon the little mouse he falls."

This beautiful falcon is well named the windhover. I have often seen it hovering without altering its position, as if hung on air—about thirty feet up—intently watching some object on the ground, and always with its head to the wind. It sometimes sweeps round in small circles, then sails away as if disappointed; hovers again, then swoops down as if to clutch something on the ground; suddenly hovers, then down again a short way; again hovers a few seconds, as if to make certain of its prey, then sweeps down like a stone to the ground and secures it—generally a straying field mouse or a coleopterous insect—then ascends obliquely, and flies off with a rapid, direct flight.

It is the most common of our falcons, is found broadcast throughout Britain, and is easily known from other birds of prey by its habit of remaining suspended in the air—fixed, as it were, to the spot by a quivering motion of the wings, so rapid as to be scarcely perceptible. It preys upon field mice, the larger beetles, and sometimes small birds. It has its nest on ledges of rocks, as well as trees, which is sometimes a mere hollow in the rock, with a few twigs placed loosely together—or in an old carrion crow's or wood pigeon's—partially lined with dry grass, wool, or rabbit's fur. It begins to lay in the end of April; has usually five eggs, dark reddish brown, with spots and blotches of a darker colour. They are lighter in colour, smaller, and generally rounder than those of the sparrow-hawk. On May 7th, 1855, I got two nests on large Scotch fir trees in the "Old Fir Park" on Tentsmuir, one with two, the other with four eggs, all fresh; and on the 17th of May I got another with five eggs, also fresh, in the same wood; besides many other nests at different times in April and May, nearly all on trees; one on the ivy at "Earlsha'," with three young ones; in a jackdaw's old nest, amongst other jackdaws' nests, also with young ones; and two on ledges of rock at Kinkell. I got one with five eggs on one of the large Scotch firs on Tentsmuir, within ten feet of a carrion crow's nest, with five young ones, on the same tree—strange fellowship!—and had I not climbed up and seen them I would hardly have believed it. Like the sparrow-hawk and other members of the family, it is tenacious of its breeding haunts. As a proof of this, on the 12th of April, a kestrel's nest, with two eggs, was got in an old carrion crow's on a spruce fir in Lathockar Wood, and harried; next week the same bird laid other three eggs, also in an old nest, about seventy yards away, these being also taken; the bird returned to the first nest, and laid again in the middle of May. But, as a rule, all birds—especially falcon hawks and eagles, like owls, carrion crows, or rooks, or even like human beings, who select certain "rookeries" or dens to live in—cling to their locality and habitation. So, if you harry a kestrel's nest of its eggs, and return in a week or a fortnight, you are pretty sure to find more eggs, either in the same nest or in another in the locality. It will sometimes lay three or four times in one year in the same nest if the eggs are taken. Nor is it too fastidious with whom it associates, as the nest on the same tree with the carrion crow's, and the other in the ivy amongst a lot of jackdaws in old Earlsha' Castle show.

The three young ones taken from the ivy at Earlsha' (then in ruins) were brought to St Andrews, in June 1877. Two of them had the usual red and black streaked livery, but although barely full-fledged the other one had a blue head and tail, like the adult male, which is unusual. Two of them lived upwards of a year, and were accidentally killed. The blue-headed one lived several years, quite tame, and assumed his full adult plumage. They were all most expert at killing the cockroaches in the house where they were kept—running about the kitchen and other rooms in the low flat which were infested with these ugly insects—and were valuable in clearing the house—their legitimate use in creation being killers of vermin. They were as assiduous in watching and destroying them in the house as if they had been intently hovering above a mouse or a cockchafer in the field.

In 1855 I took a young kestrel from the nest and trained it. It flew about the garden and the whole city, always returning for food. It was singularly sprightly and playful. When in a carpeted room it stretched out its legs, seized the carpet with its claws and beak, and ran about the room as playful as a kitten. I had it upwards of a year, flying about quite at liberty. One day it alighted on a house in North Street, when a man, thinking it was a "wild hawk," ran for his gun and shot it, much to my regret—the usual fate of wild pets.

To prove that it feeds on birds, as well as mice and insects, I have seen it capturing small birds for prey. On May 4th, 1861, when on an excursion taking notes of our feathered friends at Knockhill Wood, I saw a kestrel strike a chaffinch, and bear it off in its talons. It was also seen by a carrion crow, when a most exciting and prolonged chase took place—soaring, wheeling, darting up and down, like a skua gull after a tern—until the kestrel, sick of the hunt, or encumbered by its victim, dropped it. The crow darted down and bore it off in its bill, and flew with it into the wood. But to show that birds have not the same dread of it as they have of the sparrow-hawk—I saw a kestrel attacked by two pigeons when flying over a large dovecot near Kinaldy. They dashed at it, as lapwings do at the carrion crow when near their nest. They mounted up, until the kestrel seemed no bigger than a lark. The pigeons, strong pinioned though they were, being no match for the falcon in its own aerial domain, gave up the chase, and descended to their humble cot. As a rule, birds are not so afraid of the kestrel as they are of the hawk. I have heard the lark sing in the air, while the kestrel was hovering close by looking for mice or beetles, and the linnet sing his sweet little song on the whin below; nor does the chaffinch sound his deep "pink! pink!" of fear, or the sparrow cease his loud chitter on the hedge, or the brood-hen give her warning "cluck" of dread, when it appears above the barnyard, as they do when its more rapacious cousin, the sparrow-hawk, glides like an evil spirit amongst them. Macgillivray says:—"The chaffinch and the sparrow continue picking up the seeds at the barn door, and the swallow sings his song from the top of the chimney of the steam engine," unheeding, but owns that "when a locality is disturbed by the sparrow-hawk the kestrel is liable to be mobbed." And Selby says he has "frequently inspected the nests of young kestrels, and found them to consist entirely of fur and bones of mice ; but when it finds a difficulty in getting its favourite food, it preys upon birds, as bird-catchers have seen the kestrel in the act of pouncing upon their call-birds ;" and he "caught it in a trap baited with a bird."

It is computed that during the 210 days in which the kestrel feeds chiefly on field mice a single bird will destroy 840 mice, besides an incalculable number of coleopterous insects, which must be a great help to the farmer. Mr Waterton makes out that these 840 mice, if left alive, would by breeding have increased to such an extent that "a single kestrel, during the 210 days, is the means of destroying no fewer than 9,555 mice," besides a countless host of beetles ; and yet the gamekeepers try to exterminate it as "vermin," when, by Nature employed, it is doing its best to keep down far more destructive vermin in the shape of mice and beetles. But although Montagu, too, says he "never found feathers or the remains of birds in the kestrel's stomach," he also says that, "when it cannot get its favourite food, it preys upon birds." The remains of young larks, thrushes, lapwings, and other birds, along with the common dung beetle and other coleoptera, and even earth-worms, have been found in its stomach. It also preys on lizards, and has been seen to carry off young chickens ; but, as already said in these pages, there is no hard-and-fast line in Nature, either as regards birds, nests, eggs, or food—birds, like all other creatures, being guided by locality and circumstances ; and all that the closest observer of Nature can give is the *general* characteristics. It sometimes swallows mice whole, but generally tears them to pieces ; if the birds are fledged, it plucks them just like the sparrow-hawk. It is surprising to see the large mass the stomach holds, rolled up into a ball, composed of hair and feathers, with the bones and teeth within, to be the easier ejected by the mouth in pellets—the usual habit with all the birds in this family. It is interesting to see it sometimes, late in a summer evening, hawking for cockroaches. Selby watched one for a long time through a glass. He says—"It darted through a swarm of these insects, seized one in each claw, and ate them whilst flying—returning again and again. I ascertained it beyond a doubt, as I shot him." This catching of beetles and eating from the claw on the wing is just an instance of the latitude referred to. I have often watched a little "lesser tern" repeatedly hover above the water like the kestrel, plunge down, and rise up with a tiny sand eel or sprat, and arrange it till the head of the fish was in proper position to be swallowed first—all on the wing; and as the tern migrates from us on the approach of winter, when sand eels and sprats are scarce, why should not the kestrel also migrate, when mice and beetles have disappeared from the fields? There are doubts as to the migration of the kestrel from Britain; but that it leaves some localities for others on the approach of winter, like the robin, is certain. Mr Waterton, who made his park a preserve for birds, is of opinion that "a very large proportion of those bred in England leave it in the autumn to join the vast flight of hawks which pass periodically over the Mediterranean on their way to Africa." "One summer," he says, "I saw twenty-four nests in my park, all with windhovers' eggs in them. The old and young birds tarried till the departure of the swallow, and then disappeared. During winter there is scarcely one to be seen. When February sets in several are seen, and by the middle of the month their numbers increase. They may be seen soaring above, or hovering near the earth, to pounce upon the mouse, or inspecting the old nests of crows or magpies for incubation. Allowing four young ones to each nest, there were 96 bred that year; add the old birds, and there would be 144. Now, scarcely five kestrels were seen here from Michaelmas to the end of January." This is confirmed by Mr Hepburn, who, writing of East Lothian, says:—"Though not uncommon in this County, yet, from October to March I did not see a single kestrel; but their numbers increased in spring." From this he thinks they migrate from the district; but as we have no preserves for birds of prey about St Andrews—and by no means very common at any time—I cannot speak of this from personal observation, only I do not remember seeing any here in winter. The haunts of this beautiful falcon have been cut down, for the old woods of Stravithie, Kinglassie, Polduff, Priorsmuir, Allanhill, St Michael's, and many more, are gone to make room for the plough. It prefers to have its nest on a solitary tree on the outskirts of a wood, or on an old Scotch fir standing by itself in a field. I have got its nest and eggs in an old rook's nest on one of the few old trees which stood by the side of the Eden, near Seafield Brickwork.

But time changes all things, like bonnie Bessie Lee—even the breeding-places of falcons and hawks: for Mr Hunter, the engineer, says—"An interesting fact in connection with the Forth Bridge is, that although a great many birds are regularly killed by passing trains, the only birds which build their nests on the top spans are hawks (including the kestrel). They reign alone, and when their nests are visited it is common to find dead blackbirds and other birds, which have been swooped up from below." These "hawks," at least, must have made their own nests, as there were no old carrion crows', magpies', or wood pigeons' nests to lay into amongst those iron branches.

To show that it preys on larger animals than mice—One summer day, on my way to Priorsmuir, I saw one swoop down and snatch something from a dry-stone dyke and fly high up with it, when it suddenly fell down like a stone on the hard turnpike road near where I stood watching it. I picked the kestrel up dead, and a young weasel also dead. The weasel had fastened on the falcon's throat, and the fall on the road from such a height killed both. Possibly it had mistaken the young weasel for a mouse, and the little quadruped had bit the biter. So there is no use of some authors sneering at the assertions of others, that a polecat sometimes thus kills a golden eagle.

On July 26th, 1879, when sailing in a boat near the Eden, a young kestrel tried to alight in the boat, but fell into the sea. It allowed itself to be lifted up—quite tame—as if glad to be saved. It had been blown from Tentsmuir, as there was a strong westerly breeze, and it was not able to return; from this I conclude that many young falcons bred on the sea-coast are drowned. Being easily tamed it was a favourite with lady falconers, and trained to fly at quails, snipes, young partridges, thrushes, &c. There is less difference in size and colour between the male and female than the rest of the falcons. The adult male, however, has the head, hind neck, rump, and tail light grey-blue. The tail has a broad black bar near the end, with white tips. The general colour of both on the back and wings is pale red, with dark triangular spots; the hinder parts light yellowish-red, with linear spots. The young are similar to the female, with the spots larger. The tail is long and rounded; the wings, when closed, are two inches shorter than the tail; the bill is pale-blue, blackish at the tip; the cere pale orange; irides hazel; tarsi and toes also orange. Like all true falcons the tarsi are short and feathered in front fully a third down. The length of the male to end of tail is 13½ inches; extent of wings 28 inches;

the female $14\frac{1}{4}$ and 30 inches. The tail is $7\frac{1}{2}$ inches long; toes and claws are long, but the middle toe is comparatively shorter than the other falcons', which, like the rounded tail, have induced some ornithologists to separate it from the genus Falco. But, as already said, there is no end to classification. Its legs and talons are not so thick and strong as its little brother the merlin's, and its wings are comparatively shorter. I leave the illused kestrel alone with Nature—a hunted but mistaken prey for the gamekeeper to try and extirpate one of the most elegant, useful, and interesting feathered friends of the farmer.

In a discussion lately in the press as to whether or not hawks and owls assist the farmer in the destruction of rats and vermin, one writer sensibly doubts if any of them do so to any great extent as to rats; but, as to the assistance of the kestrel, he truly says—"Of the hawk tribe the only one worth noticing in the present discussion is the kestrel. It is most interesting to watch this beautiful bird hovering in search of food, and remaining stationary for a considerable time, then dashing down on its prey. I watched one stoop eleven times in a field, and was anxious to know what it was feeding on. Behind a hedge, it came over my head, when I shot it, and found on dissection its crop full of beetles and caterpillars, while a mouse, partly assimilated, was in the gizzard." Here was proof positive of the great help the kestrel renders to the agriculturist in the wise economy of Nature. And yet, while doing its best to help the farmer, it is shot down as a pest by the hirelings of sport, while its crop is filled with the proofs of its assistance;—which reminds one of Shakespeare's cutting allusion to lordly sports and habits, when Posthumous, in the humblest garb of a peasant, and two boys, stayed the rout of the Britons in a narrow lane, and drove back the Roman army, saying—

> "Let me make men know
> More valour in me than my habits show.
> Gods, put the strength o' the Leonati in me!
> *To shame the guise o' the world,* I will begin
> The fashion, *less without, and more within!*"

THE MERLIN OR STONE FALCON *(Falco Æsalon.) Selby.*

> *Fab.* "What a dish of poison hath she dressed him!
> *Sir T.* And with what wing the stannyel[*] checks[†] at it!"
> —*Twelfth Night.*

The merlin is the smallest of our indigenous falcons, and derives its name of stannyel, stone falcon, and rock hawk from its habit of perching upon large stones or rocks on the moors. It is a miniature peregrine falcon—in courage as well as plumage—which it resembles in all but size. A male six ounces in weight has been known to kill a partridge twice its size; but its usual prey is small birds, which it seizes on the wing—although, when pressed for food for its brood, it will attack the partridge (especially the young); but as it does not strike on the ground this seldom happens. It does not, therefore, do much harm to sportsmen, and the lovers of natural history might be spared the loss of this beautiful bird by the keepers; for even the sportsman's own illused pet—the fox—occasionally takes a pheasant as well as a partridge. It is curious that the hobby, which it resembles, is only a rare *summer* visitant; while the merlin comes to us chiefly in *winter*. It was considered to be only a winter visitant in Britain—leaving us in spring, which is incorrect, as I have several specimens shot near St Andrews from the 1st of March to the end of September. Neither do our ornithologists throw much light upon its nidification. Fifty years ago it bred on Tentsmuir and Priorsmuir amongst the heather; not now, as the heather has been burned and the woods cut down. The nest was loosely constructed of sticks and bits of heath. I have several times got their nests on ledges of rocks at Kinkell. They usually lay in the end of April, but I have got their eggs in June—usually four. They are less than the kestrel's, and darker red—not so much spotted as thickly freckled all over; but, as usual with coloured eggs, not two are alike. Of the ten I have, not two are exactly the same. On the 12th of June 1859, I got three fresh eggs in a bare hollow in the ledge of a rock only six feet from the ground. There were no sticks nor the appearance of a nest, only the natural slight hollow in the rock—being so late, it might have been harried before. It was at the "Black Rock," near "Kittock's Den," about three miles from St Andrews. And on the 18th of May 1862, I got another nest on a ledge of rock, about twenty feet up, near the top of the brae, also at Kinkell, past the "Rock and Spindle"—there was no nest, only a few twigs laid together. There were four deeply-sitten eggs in it. When I came to the foot of the rock the female flew off seaward. I watched her; she came repeatedly back close to the ledge and flew away again, as if loth to enter so long as I was there. At last she darted in upon her eggs. The male also came and flew about, as if sympathising with her, until he saw her safely in the ledge upon her eggs, then he flew away—both birds in their anxiety unconsciously telling the secret they were so anxious to hide. But this is a habit with the merlin. Macgillivray says—"Should one approach the nest when there are young the merlin flies around and overhead with great anxiety, uttering shrill cries, but keeping at a safe distance," which corroborates my own experience—only the pair at Kinkell came very close to me when at their nest. As already said, Wordsworth had also noted this habit of the merlin when he says—

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[*] *Stannyel*—a stone falcon. [†] *Checks*—flies.

> "*In clamorous agitation, round the crest*
> *Of a tall rock.*"

On the 16th of May next year, 1863, two schoolboys also got four deep-sitten eggs near the ledge of this "tall rock" where I got mine. The way they managed was—the elder boy held on by the younger one's heels, while he reached over the edge of the rocky brae and got the eggs. They broke the eggs and left them at the foot of the rock, where I picked up the shells; they were dark, dirty brown, closely freckled all over. The same year, in August, the blacksmith at Brownhills (about two miles from St Andrews) showed me a fine male, newly stuffed. The way he got it was this—flocks of sparrows frequented his pigs' troughs—one day he saw a lot of sparrows flying over the paling and a hawk after them, which struck its head on the top spar and fell stunned; he picked it up, but it died in a few minutes—hence, being a fine specimen, he got it stuffed—very possibly the male of the nest at Kinkell. In the end of June 1856 I got a male which was shot at Stravithie. And on the 9th of March 1857 I got a fine female, which was shot at Cambo, which I stuffed and still have; also a male, with its feathers much worn, shot at Priorsmuir in August 1859; and another male, shot at Kinkell in May 1862—so there can be no doubt about the merlin being indigenous in Fife. The female shot at Cambo was 12½ inches to end of tail;

11¼ inches to point of wings; and 29¼ inches in extent of wings. The male is only 11 inches to end of tail, and 26 inches in extent of wings. But although the smallest of our falcons, it has all the courage and daring of the peregrine, often killing birds heavier and stronger than itself. It has been known to kill a partridge at one blow. Like the rest of the true falcons it was trained to hunt, and from its courage and activity was a great favourite with the ladies. In "Much Ado about Nothing," Beatrice, in her answer to Margaret, couples her hawk with her horse or a husband—

> *Beat.* "By my troth, I am exceeding ill,—hey ho!
> *Marg.* For a hawk, a horse, or a husband?
> *Beat.* For the letter that begins them all, H."

And in the same comedy Hero says, alluding also to Beatrice—

> "No, truly, Ursula, she is too disdainful;
> I know her spirits are as coy and wild
> As *haggards of the rock.*"

It was flown at partridges, quails, woodcocks, snipes, larks, &c. In searching for prey it glides over the hedges and fields, like the sparrow-hawk, for which it is often mistaken. The rapidity of its evolutions and certainty of aim in selecting its victim from the very centre of a flock of small birds is remarkable. It seldom fails in clutching its prey. There is a great difference in size of the male and female—some males being not much bigger than a blackbird. Like the rest of its tribe the bill curves from the base, and has the characteristic tooth or lobe in the upper mandible; it is pale blue at the base and black at the tip; the cere and round the eyes greenish yellow; the irides dark brown; the legs and toes orange yellow; claws black. The general colour of the back and wing coverts of the male is deep greyish blue; the forehead and cheeks greyish white, margined with black lines; on the back of the neck there is a collar of pale red, with small black spots. The tail is light bluish grey—the outer feathers with eight, the middle with six black bars. The throat is white, the lower parts also white, tinged with yellowish red. The under side of the quills and tail are beautifully barred with dark grey and greyish white. The general colour of the female is deep brown, tinged with blue. The markings on the head and cheeks like the male, but larger. The young, as usual with birds, resemble the female, but have the upper parts spotted with red. It is easily known from the sparrow-hawk by the shortness of its tarsi.

With the merlin terminates our typical hawks and falcons and as the family was introduced by the vultures and eagles, it now radiates into the buzzards and harriers, which as birds of prey possess many of the characteristics of the tribe. I will, therefore, begin the sub-family with the buzzards.

SUB-FAMILY IV. BUTEONINA.

BUZZARDS AND HARRIERS. *Genus*, BUTEO.

BUZZARDS, *Generic Characters.*

This genus, of which there are only two species in Britain, with occasional visits of a third, are birds of large size, from 15 to 25 inches long, and have an affinity to the hawks on the one hand, and to the smaller eagles on the other. Indeed, between the large buzzards and smaller eagles there is no well-marked distinction. The rough-legged buzzard may be said to be the link between them. They are the least active of the family, yet their flight is strong and buoyant like the eagle's. They sail in circles, mounting to a great height, and search for prey (which consists of small quadrupeds, weak or wounded birds, reptiles, even insects and worms) by flying low over the fields. They seldom pursue birds on the wing, but pounce upon wounded ones on the ground. And Burns, in his satirical song of "Wha will buy my Troggin?" not inaptly says—

> "Here is Satan's picture,
> Like a bizzard gled,
> Pouncing poor Redcastle,
> Sprawlin' like a taed."

Their bill, which curves from the base, is comparatively weak, and without the cutting power of the falcon's; their wings and tail are long; their plumage soft and downy. They are neither noted for elegance of form, nor for courage and activity; but are very useful to the farmer in keeping down mice and other vermin.

THE COMMON BUZZARD.

Buteo Vulgaris (Falco Buteo.) Linn.

> "The sheepboy whistled loud,—and, lo!
> That instant, startled by the shock,
> The buzzard mounted from the rock
> Deliberate and slow,
> Lord of the air, he took his flight."—*Wordsworth.*

This is a picture in the sky now seldom seen.

The common buzzard is generally distributed in Britain. It feeds on all sorts of small quadrupeds, such as mice, moles, leverets, and young rabbits; and on reptiles, insects, worms, young and wounded birds, and carrion. Its food—as disclosed by its stomach (by Macgillivray)—consists of "the mole, short and long tailed mice, shrews, young birds, red grouse, grey partridge, small birds, lizards, beetles, larvæ, and large worms." In one instance he found the "stomach filled with worms, and another with leaves of plants and roots, beetles, and an earth-worm. The mole is sometimes found swallowed entire, and mice generally swallowed whole." Thus, like the kestrel, it is of great service to the farmer. It is carefully computed that each buzzard and owl will destroy no fewer than from 6,000 to 8,000 mice annually.

In the spring of 1885, 400 buzzards were shot in the environs of a town in Germany, and, making calculation from ascertained facts, no less than three million of mice had been spared by the senseless slaughter of these valuable birds. Next year the mice appeared in multitudes—like one of the plagues of Egypt—and, by the destruction of the crops, revenged the foolish policy of killing their natural enemies and interfering with Nature's wise and perfect universal laws. Wordsworth truly says—

> "Nature never did betray the heart that loved her."

This year (March 1892), several long articles appeared in the *Scotsman* on "The mice plague in the Border Counties," from which I quote—

> "The magnitude of this plague is not realised, even by those most concerned. Five years ago the mice attack was limited to two or three farms in Selkirkshire; to-day they are in possession of nearly all the best hill pastures in the Counties of Roxburgh, Selkirk, and Dumfries. They have also done serious damage in the Upper Ward of Lanarkshire, and it is feared they have made good their hold in the adjoining Counties of Peebles, Ayr,

and Kirkcudbright. The rapidity with which the mice are distributing themselves over a wider area of country, and in ever-increasing numbers, is not surprising after the way the plague has been allowed to run its course; for the short-tailed field-mice *(arvicola agrestis)*, which are the culprits, breed from three to six times a year, and produce from four to eight at a birth. Their favourite food is the young shoots of grass, the delicate white stems rising immediately out of the earth (they eat the roots of grasses and old herbage as well). They use great caution when feeding, always under cover of the rough grass, and, as they burrow deep, they are almost invincible to the weather, and have a safe retreat to bring up their young and deposit their winter stores. Thousands of acres of the best grass lands are laid waste by them, and are at present totally destroyed for sheep pasture. The bog grass, on which the sheep mainly depend in April and May, has been eaten down to the roots; some of the bents are as much injured as the bogs, and even the young heather has not escaped. £100,000 will not cover the damage done by mice in the above-named Counties during the last year. Entire hirsels of sheep have been taken off their usual ground and sent away to winter—or some other substitute found at a great expense. Where this has not been done the sheep are in a deplorable condition, which will be more clearly seen later in the year.

Some idea of the loss generally may be gathered from the following statement by Mr John Scott, Newton, Hawick. He says—'Since we got the farm in 1887 the lambs have never been up to the quantity and quality they should have been. For 1890-91 the shortness of lambs, owing to the mice destroying the ground, would be £250. For the year 1891-92—

Lightness of clip, - - - - - -	£31 0 0
410 sheep wintered away, - - - - -	143 10 0
Grass taken to lamb 600 ewes on, - - -	210 0 0
Hay which the sheep are eating, - - -	160 0 0

But it is impossible to estimate the damage, and, unless the mice depart, the most of the sheep will have to be taken away till the plague gets past.'

Here, then, is one farmer who puts the damage done to his farm by the mice last year at over £540. He is only one of hundreds of sufferers, and by no means one of the largest. The means tried to subdue the pest—such as digging pits for the mice to fall into, and employing men and dogs to kill them—have slaughtered thousands without even mitigating the plague, and are a mere waste of time so far as exterminating the pest goes. Poison seems the only effectual way of doing this. Of course with poisoned grain there is danger that sheep and game, and even the natural enemies of the mice, would suffer. The great object is to find some substance fatal to the mice and inocuous to others. Nothing will be better than the phosphorus and lard used by ratcatchers. This can be prepared at a small cost. Melt hog's lard in a large bottle or tin-flagon; plunge in water heated to about 150 degrees; introduce half-an-ounce of phosphorus for each pound of lard; then add a pint of proof whisky (thus even here is whisky useful); cork firmly after being heated and taken out of the water; shake until the phosphorus is diffused. This liquid when cooled will form a white compound, which, being warmed gently, may be poured into a mixture of barley meal and sugar, flavoured with oil of rhodium, &c., the dough being made into pellets for the mice. The following, as a flavour, is useful:—

Oil of rhodium, - - - - - -	1 scruple.
Oil of carraway, - - - - - -	1 drachm.
Oil of lavender, - - - - - -	5 drops.
Oil of aniseed, - - - - - -	10 drops.
Tincture of musk, - - - - -	2 drops.

A microbe capable of destroying the mice has been suggested; but, three years ago, M. Pasteur went sanguinely to the rescue of the Australian sheep-farmers to effect a clearance of the rabbits by spreading a death-dealing microbe amongst them. Chicken cholera-broth was to be sprinkled on the herbage, which the rabbits were to eat, and spread an infection which was to exterminate them. But M. Pasteur has not yet won the £25,000 offered by the New South Wales Government to the man who stamps the rabbits out. We know, however, that every living form, whether animal, fish, bird, or insect, has its destroyer—from man, who kills all life, to the tiny parasite which destroys those of similar form and habit as itself. One species is always making war upon another. This is a wise provision of Nature to prevent the increase of what would be scourges upon the rest of the world. Many farmers think the mice plague has been *caused by gamekeepers having shot all the birds and animals which naturally prey upon the mice. And there is no doubt that the wholesale destruction of owls, hawks, weasels, &c., has been a potent cause of the mischief;* but the balance of Nature has been interfered with by farmers themselves destroying hedgehogs and moles, oblivious of the fact that these prey upon mice as much as some of the others mentioned, while they do additional service by keeping down injurious insects.

The most effectual remedy for the mice plague will be to introduce as many owls, hawks, weasels, hedgehogs, moles, &c.—even if they have to be brought from a distance at considerable expense to begin with. The inter-dependence of different departments of Nature is at present curiously illustrated in the Southern States of America. Alligators have been nearly exterminated by sportsmen and hide-hunters. But it appears the ugly creatures had a use in Nature, for, as they decreased in number, the musk-rats increased till they, like the mice, became a plague in some districts; and the local authorities are now prohibiting the killing of an alligator under a fine of £20 or a month's imprisonment."

All this is very instructive, to see what great mischief is done by simply interfering with the wise balancing laws of Nature. It is amusing to see the advocates of the farmer—in their desperation—speak of restoring the birds of prey, after the so-called sportsman and his minions have done their best to exterminate them—falling back upon poison and other doubtful expedients after the evil has been done through selfish, blinded ignorance. Besides devouring mice, the buzzard is of great service to the farmer in driving off the ring-doves from the corn. He is accused of killing what is called game, and suffers accordingly; but the gleanings of the fields are not left to maintain game alone, being shared by mice and small birds, and yet the poor buzzard is shot down when fulfilling the great end for which he was created—setting bounds to their increase. When will our senators see the errors of game laws, and the evils they inflict on the lower creatures? Not till then will the farmer experience the full benefit of our rapacious birds. Very little seems to be known of the buzzard, or it would not be so indiscriminately shot. Some writers, like St John in "Wild Sports," describe it as being like the kite—"a carrion-feeder, and seldom kills anything but small birds, mice, or frogs, except during the breeding season, when it is very destructive to game." Another, who kept one for two years in a large shed along with several guinea-pigs and tame rabbits, believes it to be "wholly a carrion-feeding bird." He gives as his reason—that although his tame rabbits had young ones every six weeks, which ran about the shed along with the buzzard, it never touched one of them, although often pressed with hunger, for it was "difficult always to provide it with such food as dead moles, rats, birds, and the like;" and during the two years it never touched anything alive, although it had ample opportunity. It was a wild bird when he got it, trapped by a keeper; from this, and from its never trying to escape through a large hole in the side of the netting of his shed, this writer justifies the opinion of our forefathers in their application of the word "buzzard" to a foolish fellow. Shakespeare had no great opinion of its speed when he makes Petruchio say to Katherine—

"O slow-wing'd turtle! shall a buzzard take thee?"

Compared with the falcons, poets scorned the buzzard. Robinson, in "The Poet's Birds," says "the buzzard is hardly worth calling a bird, and is used to express the *ne plus ultra* of unworthiness among fowls," which is borne out by Rob Roy exclaiming, when Captain Thornton's party was sent to surprise him in the Highlands—

"My dirk and claymore there, some o' ye;
I must attack those buzzards in the rear!"

And yet, when you see it with keen eye and undaunted deportment, there is, as in all raptorial birds, much nobility in its bearing—at least the painter would say so, independent of the poet. Shakespeare draws a fine discerning comparison between the eagle and the buzzard (which he calls a puttock) in Imogen's reply to King Cymbeline, concerning her choice of a husband—

Cym. "Thou might'st have had the sole son of my queen!
Imo. O bless'd, that I might not! *I chose an eagle,*
And did *avoid a puttock.*"

And, regarding the doubt of its killing birds, equally discerning is Warwick's reply to Queen Margaret respecting the Duke of Gloster's murder—

War. "Who finds the heifer dead, and bleeding fresh,
And sees fast by a butcher with an axe,
But will suspect 'twas he that made the slaughter?
Who finds the *partridge in the puttock's nest,*
But may imagine how the bird was dead,
Although the kite soar with unbloodied beak?
Even so suspicious is this tragedy."

It is sometimes called glead, kite, and puttock. It is rather larger than the peregrine falcon, but not so compact. When soaring it is easily known from that bird by the large white patches under the wings. Selby says it is shot in France during winter, and is "esteemed delicious eating." It is more common on inland than on the sea-coast, although it breeds on the Island of May, on the high ledges on the west side. About fifty-five years ago it bred in the large woods of Stravithie, Kinglassie, Priorsmuir, and Allanhill—part of the famous *Cursus Apri*, or Boar's Chase—a tract of land from Pitmillie Burn to Dairsie, about eleven miles long by five miles broad—originally a gift to the so-called Church by one of our early Scottish kings; and, even in my time, this Priorsmuir was the centre of a wild tract of dense woods, whins, and heather, in which, besides the buzzard and kite and their nests—then as common as sparrow-hawks—I have seen the deer running wild. And, no doubt, long before, when the imposing Cathedral stood in its entirety, and the proud Priory was in full swing, many a time would the prior and his canons walk or drive out to it as a favourite hunting-ground—at least it was for the buzzards and other birds of prey—for this wide district of wood at one time extended to Denino, Cameron, Kinaldy, Lochty, Lingo, and Watterless—embracing a hunting-ground for the buzzard of about fifty square miles. Latterly, this Priorsmuir was turned into a foxes' cover—about 1869—through which now runs the St Andrews and Anstruther railway, where, fifty years ago, I have cut trees, unchecked, for the gallery of a boys' dramatic club. The buzzard makes its large nest of sticks and twigs, rudely lined with wool and grass, on large trees in woods, or on the ledges of rocks. The eggs, three or four—the colour and size vary according to the age of the bird—are about $2\frac{1}{4}$ by $1\frac{3}{4}$ inches, from a plain greenish white to deeply spotted and blotched with reddish brown; as a rule the older the bird the darker the egg. The young, like the rest of the tribe, are at first covered with whitish down. The general colour of the male on the upper parts is brown, glossed with purple; the head and hind neck streaked with yellowish white; the bases of the loose downy feathers are white. The tail, which is 9 inches long and square, is marked with ten or twelve brown bars. The bill is bluish black; the cere and irides lemon yellow; legs and toes bright yellow. The female is darker and more uniformly brown than the male, and the lower surface of the wings darker than the male, which makes the large white patch still more conspicuous. The male is 19½ inches long to end of tail, and 49 inches in extent of wings; the female 22 and 57 inches, tail 9¾ inches long. The wings are long, and extend to the end of the tail.

On the 23rd of September 1881, after a heavy south-east sea-storm, I picked up a headless, legless male buzzard near the Buddo Rock, about four miles from St Andrews; it was drenched by the sea, and the wet down under the loose feathers showed the skin so much that it seemed worthless as a specimen. It was very fat, and weighed two pounds. A keen gunner and bird fancier, who knows the value of a stuffing-bird, picked it up the day before, but, thinking it was worthless, cut off the head and feet and threw it away. But, knowing the loose formation of the feathers, I brought it home, dried, skinned, and stuffed it, and was lucky in hunting up the head and legs, which I stuck on, and it now looks a fine specimen of the male common buzzard. Its wing had been broken by a shot. On opening its stomach I found the remains of beetles in it. Ornithologists generally commend the poor buzzard to the forbearance of the gamekeepers as a friend to the farmer in keeping down mice and noxious insects, as "just the instrument of Nature wanted to clear off sickly young birds, which on arriving at maturity yield an offspring of a degenerate breed." I would go further, and, in the interest of the sheep-farmer, make it a penalty to shoot one, as the Southern States of America are forced to do with the alligators, to keep down the plague of rats and mice.

THE ROUGH-LEGGED BUZZARD OR FALCON.

(Buteo Lagopus.) Flem.

> "E'en a crow of the same nest; not altogether so great as the first in goodness, but greater a great deal in evil. He excels his brother for a coward, yet his brother is reputed one of the best that is."—*All's Well that Ends Well.*

The rough-legged falcon or buzzard closely resembles the last in size, form, and plumage, except that the tarsi are feathered to the toes instead of being half bare. There is considerable difference in the colour of this species in the proportion of brown to yellowish white; in some the darker colour predominates, the reverse in others. The legs are short and strong; the toes shorter than the common buzzard; but the claws are long, moderately curved, and sharp. The cere and toes are yellow; the iris also yellow. The bill and claws black, blue at the base. The general colour is dark umber brown, tinged with grey; the short feathers of the legs and tarsi reddish yellow, mottled with dark brown. The tail is white for nearly two-thirds from the base; the rest brown, with a small portion of the tip brownish white. The wings are long, much rounded, and reach to the end of the tail. The plumage is remarkably soft and blended. The male is 21 inches long; extent of wings, 51 inches; tail, 9½ inches long. The female is 23½ inches, and 56 inches in extent of wings; tail, 10 inches. But being a very rare winter visitant in Scotland, a description of its nest and eggs is unnecessary here; they are very like the others. It is a native of the colder countries, and occasionally visits Britain in autumn or winter. I have never seen one here. But Macgillivray says—"An individual was shot in Fifeshire in Dec. 1839" (the same time that I have seen the young of the common buzzard brought from Priorsmuir). Selby is the only author who has described its habits from personal observation, he having watched two that settled in his neighbourhood. "Their flight," he says, "was smooth but slow, like that of the common buzzard. They seldom continued long on the wing, and preyed upon wild ducks and other birds, which they pounced upon on the ground; and mice and frogs constitute a great part of their food, as the remains of both were found in the stomachs of those that were killed."

THE HONEY BUZZARD OR BEE HAWK.

(Falco Apivorus.) Linn.

There is another, called the honey buzzard, placed by Cuvier into the genus *Pernis*, but, as it is not only not a native of Fifeshire, but seldom breeds in Scotland, a description here would be out of place. It is more slender than the other two. It has its nest on large trees—the eggs two and three in number, thickly smeared all over with dark brown—peculiar to this species.

Genus, CIRCUS.

HARRIERS, *Generic Characters.*

The birds of this genus show a marked approximation to the owls on the one hand, and to the buzzards and hawks on the other. The form of the bill, the reflected bristles between the bill and the eye, and the peculiar ruff surrounding the face, resemble those owls which, from hawking in the daytime, receive the name of *Accipitrine* owls. Their bill bends from the base, rather weak, much compressed, forming a narrow rounded culmen or central ridge; the tomia or cutting edge of the upper mandible has a very small festoon or sinuation near the middle of the bill, under mandible concave, its edges fitting into the grooves of the upper, showing that strength of bill was not so much needed as in the more typical falcons and hawks. Wings long; tail long and slightly rounded; tarsi long and slender, like the sparrow-hawk's (but toes shorter), feathered in front below the knee-joint. Toes rather slender; middle one longest, the outer next in length; claws moderately curved and sharp, those of the inner and hind toes the largest. They are more active than the rest of this sub-family; and their flight, though not remarkable for speed, is light and buoyant, and can be supported for a long time in search of their prey—consisting of birds, small quadrupeds, and reptiles, which, like the buzzards, they seize on the ground. The plumage is very soft and blended, especially in the females, which is almost as soft as some of the owls'. When searching for food they fly low, with a gliding, easy motion. They nestle on the ground, and lay three or four eggs—seldom five. Three species are found in Britain—the marsh harrier, the hen harrier, and the ash-coloured harrier. They all differ from the typical buzzards by their long slender form; their lengthened tarsi, like the hawks'; and the distinct ruff of close-set feathers, which, like the owls, so far surrounds their face. They have large eyes and ears, which bring them also nearer the owls.

THE MARSH HARRIER OR MOOR BUZZARD.

(Falco Æruginosus.) Linn. (Circus Rufus.) Selby.

> "Now for the bare-pick'd bone of majesty,
> Doth dogged war bristle his angry crest,
> While discontents at home, and vast confusion waits
> (As doth a raven on a sick-fallen beast)
> The imminent decay of wrested pomp."—*King John.*

In colour the marsh harrier (which is the largest of the three) resembles the buzzards, and forms the close connecting link between the genera *Buteo* and *Circus*. The upper parts are deep umber brown; the lower reddish brown. The upper part of the head, neck, and throat are white, tinged with yellowish brown. The primary quills are blackish brown, the rest of a lighter tint, margined with grey. The tail is light brown, tinged with grey. The plumage is soft and blended. The ruff on the face is not so conspicuous as on the other two. The wings are long, broad, and much rounded. The tail is also long and slightly rounded. The bill is brownish black; base tinged with yellow. The iris orange; cere, greenish yellow; tarsi and toes, rich yellow; claws, black. The nest is on the ground, amongst furze or fern—made of sticks, rushes, or grass—sometimes in the fork of a large tree. The eggs, usually four, are nearly white, tinged with blue, and sometimes slightly spotted and smeared with brown. They are less than the buzzard's, being $1\frac{7}{8}$ inches, against $2\frac{1}{4}$ inches long. They breed early in May. The male is $21\frac{1}{2}$ inches long and 49 in extent of wings; tail, 10 inches. The female is 24 inches; extent of wings 52 inches; tail scarcely 10 inches—coloured like the male. Although this bird does not breed in Fife, I have given this brief sketch—to enable my young friends to identify it—as a condensed history of the British birds. Being a marsh frequenter it is more numerous in the south than in the north of Scotland, and was once common in the fens of Cambridge, Norfolk, and Lincolnshire. But what the clearance of the woods and wilds round Priormuir has done to the buzzard in Fifeshire, the draining has done to the fens of England. The moor buzzard was the first to cease breeding in Norfolk; then the hen harrier; and, lastly, the ash-coloured species. And, as if to bear out what I wish to impress upon my readers, the difference in coloured eggs (which also holds good as to the materials of nests in different localities), Montagu, a reliable ornithologist, maintains that the eggs of the marsh harrier are "perfectly white—*without spot.*" Latham, as good an authority, says they are "*spotted with brown.*" Selby, also another reliable authority, expressly contradicts Latham's statement, and maintains that they are "white and *not* spotted." And Hewitson, in his more recent work of the coloured eggs of British birds, distinctly says that "the eggs *are usually spotted*—sometimes quite white;" then alters his own statement by saying "the eggs of the marsh harrier are most *commonly white*, but sometimes spotted;" and, again, as if loth to leave the question, reiterates that "the eggs of the marsh harrier, although for the most part white or slightly tinged with blue, are sometimes spotted and smeared with brown, in the same manner as those of the hen harrier." Yet, in his coloured work, he adheres to the more typical colour of the three species by making them *all white*, tinged with blue, *without* spots. The eggs of the three species may be easily known from those of the nearly allied species by the clear greenish blue of the inside, which may be seen by holding them to the light. The harrier is migratory on the Continent, but remains in Britain the whole year. The young are darker in plumage, and, as usual with the tribe, grow lighter with age.

THE HEN HARRIER. *(Circus Cyaneus.) Flem.*

> "Now for our mountain sport: Up to yon hill,
> Your legs are young; I'll tread these flats. Consider
> When you above perceive me like a crow
> It is distance which lessens and sets off."—*Cymbeline.*

The common or hen harrier, sometimes called the ring-tailed harrier and blue hawk, used to breed on Tentsmuir about fifty years ago; but it gradually became rarer, till now one is never seen in Fife, to my knowledge. It is considerably less than the marsh harrier, and is of a slender or elongated form. Its bulk, however, is more made up with an abundance of soft, downy feathers—like the owl's—than size of body, for when plucked the body is short, the head large, and the bill short and slender in proportion to the other birds of the family. The eyes are large, and the ears particularly so, about half-an-inch long. There is a considerable difference in the plumage, as well as in the size, between the male and female of this species, so much so as at one time to have been set down as different species. And there are more synonyms of it than any other of the tribe. The general colour of the male is light greyish blue; the head and scapulars of a deeper tint. The hind part of the back paler; the upper tail coverts white. The outer six wing quills are black; the outer webs tinged with grey; the inner webs mottled with dark grey. The middle feathers of the tail lighter than the back; the rest paler, until the outer web of the lateral becomes white. The inner webs of all (but the two middle) white, with eight bars of dark grey. The fore neck and part of the breast are greyish blue, lighter than the back. The middle of the breast, abdomen, and tibial feathers bluish white. The wings are long, broad, and much rounded, two inches shorter than the tail when closed. The tail is also long and straight—nearly even. The bill is bluish black; the cere and iris yellow; the tarsi and toes orange; claws black, long, curved, rounded above, flat beneath, and sharp. The toes are comparatively small. The tarsi are long and slender, and feathered about a third of their length anteriorly. Length, 18¼ inches to end of tail; extent of wings, 39½ inches; tail, 8½ inches. The plumage of the female is softer, and the ruff on the face more conspicuous. The general colour of the back and upper wing coverts are umber brown; the upper parts of the head deep brown; the feathers slightly edged with light yellowish red. The bristle tips at base of bill black, like the male. The cheek feathers are dull brown, edged with yellowish red. Those of the ruff, yellowish red. The upper part of the neck and breast are reddish yellow, each feather with an oblong dark brown mark. The quills are umber brown; inner webs whitish, broadly barred with brown. The upper tail coverts white, with reddish spots. The tail is white for about an inch at the base, deep brown the rest; the four middle feathers have four brown bands, the rest have five of a reddish tint; tips reddish white. The lower surface of the primary quills is greyish white, with conspicuous dark bars—hence the name of ring-tailed harriers. In fact, the general colour of the female is much darker than the male. Length, 21 inches to end of tail; extent of wings, 46 inches; tail, 10 inches; but both male and female vary in length from 17 to 19 inches, and from 19 to 21½ inches. As is generally the case, the young of both sexes of this family resemble the adult female, and, as usual, adults grow lighter in colour with age. The hen harrier has received its name from its real or fancied habit of robbing the domestic hen of her brood (but I am afraid the real hen harrier is often that daring little plunderer the sparrow-hawk). They will often be seen hunting in pairs—male and female. They fly low, and, like the greyhound after a hare, pursue their quarry until hunted down. The hen harrier breeds chiefly in marshy districts early in May, and to bear out the different situations and forms of birds' nest I give different authors' accounts. Hewitson says—"In low grounds (such as fens) the nest is placed upon the ground, and is formed of so large a quantity of flags, sedge, and reeds as to raise it 18 inches or 2 feet above the surface, to protect the eggs and young from the water by which the low grounds are often flooded. A correspondent has seen the nest raised nearly 4 feet from the foundation. The eggs, though most frequently of a spotless bluish white, are often slightly marked with yellowish brown, mixed with a purplish hue, and sometimes with more distinctly defined spots of light brown." Selby says—"It breeds on the open wastes, and frequently in thick furze covers. The nest is placed on the ground, and the eggs are four or five, of a skim-milk white colour, nearly as large as the marsh harrier." Sir William Jardine says—"The habits differ considerably, according to the district they inhabit. Where there is a considerable proportion of plain and mountain, *where I have had the greatest opportunities of seeing them*, they *always retire* at the commencement of the breeding season to the hills, and during this time *not one will be found in the low country.* When the nest is completed, the female when hatching will not allow the male to visit the nest, but rises and drives him with screams to a distance. The nest is often made in a heath-bush by the side of a ravine, and is composed of sticks, with a very slender lining; it is sometimes found in scaurs on the side of a steep hill—here *little or no nest is made*, and the eggs are merely laid on the bare ground, scraped hollow. In a flat country the nest is found in a whin or other scrubby bush, sometimes a little way from the ground." Thus we see that the hen harrier, like all other birds, vary in the form of their nest. But they do not now breed near St Andrews, having been driven from the moors. Although their prey is generally small birds and the young of larger, and young hares, rabbits, mice, frogs, &c.—which they seize on the ground—they also pursue birds in open flight, and have been often seen to seize red grouse, ptarmigan, and partridges on the wing—even seizing partridges (which the dogs of sportsmen have put up) and carried them off. When the young are full-grown they, with the old birds, return to their old haunts and commit great havoc among the young game. At night they roost among whins or long heath, as they used to do on Tentsmuir and Priormuir, and always in some open spot of ground. Their general roosting-places are easily found in the daytime, and the birds may be caught by a trap or shot in the moonlight—at least Sir William Jardine says he has got them both ways, and has seen as many as seven going to roost at one time.

THE ASH-COLOURED OR MONTAGU'S HARRIER.

(Circus Cineraceus.) *Shaw.*

> "I had rather hear my dog bark at a crow
> Than a man swear he loves me."
> —"Beatrice," in *Much Ado about Nothing.*

As a proof of the difference between the male and female of the last species and its many synonyms, this bird was confounded with it, and always considered the same species, till Montagu detected the difference, and established it as a different species—hence its name, "Montagu's harrier." It is less than the last, and its wings, when closed, reach half an inch beyond the tail. Both male and female closely resemble the markings of the hen harriers. The plumage is also very soft and blended, and the facial ruff, though less than the common harrier, is formed the same. It also breeds in May, and makes its nest on the ground, more slightly formed than those of the other two species, and composed of sedge and rushes—the eggs usually four or five (one was found with six). They are clear white, tinged with light blue, never spotted, and less than the hen harrier's—1⅝ inches against 1¾ inches. It neither breeds near St Andrews nor has been seen in the district to my knowledge.

SUB-FAMILY V. MILVINA.

Genus, MILVUS.

KITE, *Generic Characters.*

After the harriers, I will class the common or red kite—the only one of the genus found in Britain. The generic characters are—bill rather strong, more like the true falcon's; mouth large, measuring 1¼ inches wide. The bill is round, and forms an acute hook from the cere to the tip. The wings are very long, so is the tail, which is much forked like the swallow's; legs and toes short but strong. The claws are long and strong, and moderately curved; in fact, the bill and claws of the kite, as weapons of offence, bring it nearer to the larger falcon than the harrier, and would induce us to give it a more daring character than it deserves. But if its daring does not come up to our idea from its looks, its easy and graceful flight surpasses it; for the chief characteristic of the genus is easy gracefulness of flight, performed by little exertion in easy circles, guided by their elongated forked tail. In general form and habits they resemble the buzzards and harriers; but their greater development of wing and peculiar forked tail are distinctive marks of separation, while their bill and claws and other characteristics bring them nearer to the more aquiline groups of the family. The plumage is also soft and blended.

RED KITE OR GLEAD *(Falco Milvus). Linn.*

"The deadly-handed Clifford slew my steed;
But, match to match, I have encountered him,
And made a prey for carrion kites and crows,
Even of the bonnie beast he loved so well."—*King Henry VI.*

This beautiful bird is distinguished from the rest of the falconidæ by its forked tail. It is the only indigenous member of this sub-family of the raptores in Britain. It is pretty generally distributed in South Britain, as well as in the Highlands of Scotland. Selby says "it is plentiful in Aberdeenshire, and in the vicinity of Loch Katrine;" he had the pleasure of watching its graceful flight from the beautiful banks of Loch Awe, and had frequently seen them when passing the woods near Alconbury Hill—a well-known breeding-place—at least they were there up to 1844; but I believe the last of them have been destroyed since. Macgillivray also says that "from Stirling and Perth westward it is often seen, and in some parts of Dumbarton, Argyle, and Perth cannot be considered scarce," which facts may have induced Burns to write before them—

"I fought at land, I fought at sea;
At hame I fought my auntie, O;
But I met the devil and Dundee
On the braes o' Killiecrankie, O.

> The bauld Pitcur fell in a fur,
> And Clavers got a clankie, O,
> *Or I had fed an Athole gled*
> On the braes o' Killiecrankie, O."

Although it is not found in Fifeshire to my knowledge, I could not pass by without remark, the type of the paper kites of our boyhood, which, with "weeby" tail, paper feathers, and lengthened string, we used to fly with such glee (and, after many a fall,) and so proudly admired, when, like the living bird, they soared and calmly settled aloft—hanging for hours, like their living prototype, resting on air. How many of those who see the paper toys hovering over the parks of London on fine summer days have any idea that the bird from which they derive their name used to float all day in hot weather over the heads of their ancestors? It was formerly so abundant in the streets of London that visitors from the Continent, four hundred years ago, made notes of their surprise at its numbers and familiarity. A learned writer, in an article upon the Bohemian Embassy to England four hundred years ago, supposes that "Milvi," in *Schassek's Journal*, must have been a mistake for "Cygni," as London had always been celebrated for swans; but other old writers leave no room for doubt that the kite was the most familiar bird with the citizens of old London. It was much more plentiful than jackdaws or pigeons are with us now; and the many allusions which Shakespeare makes to it were doubtless made from personal experience; for instance, Macbeth's exclamation when he sees the ghost of Banquo—

> "See there! behold! look! lo! how say you?
> Why, what care I? If thou canst nod, speak too—
> If charnel-houses, and our graves, must send
> Those that we bury, back, *our monuments*
> *Shall be the maws of kites.*"

This horrible picture no doubt is taken from his seeing the kites gobbling up the carrion in the streets of London.

And when Macduff is told of the murder of his wife and children by Macbeth, how tellingly he introduces the kite—

> "He has no children. All my pretty ones?
> Did you say all? O, *hell-kite!* All?
> What! *all my pretty chickens* and their dam
> At one fell swoop?"

What a use for the London scavenger—to gobble up the offal of hell! He makes Hamlet also bitterly exclaim—

> "But I am pigeon-liver'd, and lack gall
> To make oppression bitter; or, ere this,

> I should have fatted *all the legion kites*
> *With this slave's offal:* Bloody, bawdy villain!
> Remorseless, treacherous, lecherous, kindless villain!"

And almost to prove that Shakespeare took his similes from the kites of London, he makes Coriolanus say, in answer to the question "Where dwellest thou?"

> *Cor.* "I' the *city of kites and crows?*
> *Serv.* I' the city of kites and crows? *Then thou dwellest*
> *with daws too?*"

Kites being as plentiful as daws were in the streets of London in his time.

In the "Winter's Tale" the thief Autolycus says—

> "My traffic is sheets; when the kite builds look to lesser linen—
> My father was likewise a snapper up of trifles."

The kite would no doubt snap up "lesser linen" when it built its nest in London.

He makes the braggart Pistol say in "Henry V."—

> "And from the powdering tub of infamy
> Fetch forth the *lazar kite of* Cressid's kind."

Cressida—though a priest's daughter—being the very type of falsehood in woman.

> *Troilus.* "O, Cressid! O, false Cressid! false, false, false,
> Let all untruths stand by thy stained name!"

Or, as Lennox says to Macbeth—

> "The obscene bird clamour'd the livelong night."

But his allusions to the kite are various, as if it was ever before his mind as a carrion bird of the worst kind. Yet it is proverbial for the ease and gracefulness of its flight—sweeping the air in wide circles, with motionless wings, or with an almost imperceptible beat at distant intervals, directing its course by its long tail, which acts as a rudder, and whose slightest motion guides it—like the easy sweep of the dolphins' in the sea. It often soars to such a height as to be almost lost to human ken, gliding and sailing with outspread wings and extended tail. Buffon says—"One cannot but admire the flight of the kite; his long, narrow wings seem motionless; the tail seems to direct all his evolutions, and he moves it continually; he rises without effort, comes down as if sliding along an inclined plane; he seems rather to swim than to fly; he darts forward, slackens his speed, stops, and remains suspended or fixed in the same place for *whole hours without showing the slightest motion of his wings.*" This answers for a paper kite with the string tethered to the ground. No wonder the living kite was selected as the pattern for the toy ones. Wordsworth also notes this *sailing* habit of the kite amongst other birds—

> "*The sailing glead,*
> The wheeling swallow, and the darting snipe ;
> The sporting sea-gull dancing with the waves ;
> And cautious water-fowl from distant climes
> Were subject to young Oswald's steady aim,
> And lived by his forbearance."

Mr Weir, a close observing ornithologist, says—"In the neighbourhood of Bathgate during twelve years I have only seen one male. For three seasons he frequented the same parish, daily visiting the same localities about the same hour. Amongst partridges and other birds he committed great havoc. His flight was easy and graceful, consisting of curves and wide circles ; by the almost imperceptible motion of his wings, guided by his long tail, he occasionally soared to a great height. He often delighted and astonished the inhabitants, who thought he was one of Jove's noble birds come from the north to visit our more genial clime." From this we are not only reminded of the appropriate origin of our paper kites or "dragons," but, also, that it had other uses than merely to gobble up the offal thrown broadcast on the streets of London before sanitary laws were enacted ; and helps to prove the elastic characteristics of our carrion birds—from the carrion crow up to the condor of the Andes. Indeed, the kite was once called the "royal kite," and used by royalty to hunt along with falcons and hawks, which may account for the monstrous salary of the "Hereditary Grand Falconer and Master of the Hawks," drawn by the Duke of St Albans, and paid by the nation. Mr Hanbury, in the House of Commons, lately brought out that the Duke draws (1) a salary for doing nothing ; (2) an allowance for falconers whom he does not employ ; (3) an allowance for hawks which he does not keep ; and (4) an allowance for feeding hawks which have no existence. The emoluments of the office used to be—

Salary, - - - - - - -	£391	1	5
Four falconers, - - - - -	200	0	0
Purchase of hawks, - . - - -	600	0	0
Hawks' food, - - - - - -	182	10	0
	£1,373	11	5

It were better for working men to question such sinecures and equally monstrous *mining* "Royalties," than blindly cutting down the hours of national competitive labour and making destructive war against capital. Like "strike-fed" demagogues, the kite is a multifarious feeder, and a great depredator of chickens, ducklings, and goslings in the districts where it abounds. Montagu tells that one was so intent on getting chickens from a coop that a servant girl knocked it down with a broom; and when a woman was washing entrails in a burn one swooped down and bore off a large portion, trailing yards in the water, in spite of her efforts to frighten it away—an apt illustration of the proverb—"It's no for nocht the glead whustles." It is now confined to the wilder districts and largest woods, building its nest in the fork of a large tree; it is composed of sticks, lined with grass, wool, and other soft materials. It is, like the rest, an early breeder, and lays three or four eggs, greyish white, speckled with light brown at the larger end—sometimes plain, not unlike the common buzzard's, and sometimes beautifully covered with light rufus blotches; others with lilac and purple—they are 2¼ by 1¾ inches. The general colour of both male and female is reddish orange, streaked with brownish black—hence "red-kite;" head and neck, greyish white; breast, belly, and long feathers of the thighs, reddish orange, also streaked with black. Tips of wings when closed reach to the fork of the tail; bill, light brown at base; tip, black; cere and iris, yellow; tarsi and feet, rich orange yellow; claws, black. The male is 25 inches to end of tail; extent of wings, 61 inches; tail, 13½ inches. The female, 27 and 63 inches; and tail, 14 inches. The young birds, as usual, are darker coloured; the adult grows lighter with age.

THE SWALLOW-TAILED ELANUS OR SWALLOW KITE.

(Falco Furcatus.) Linn. *(Elanus Furcatus.) Savigny.*

Ornithologists introduce another genus, *Elanus*, as an occasional visitor; but, with two exceptions, one killed in Argyleshire and one caught in Yorkshire, there seems to be no authentic instance of their very rare visits—a slender title for a British bird. It is called the swallow-tailed kite or hawk, white-headed swallow kite, &c. It is less than the red-kite, and generally agrees with the generic characters of the sub-family.

With it I conclude the diurnal birds of prey. Before introducing the nocturnal ones—the owls—I may observe that, under the general heading of Raptores, the British birds of prey may be summed up in the two families—the *Falconidæ* and the *Strigidæ*—divided into sub-families and genera, as already described (leaving aside the Vulturidæ). The first sub-family is *Aquilina*—genus I. *Aquila*, eagle; genus II. *Haliætus*, sea eagle; genus III. *Pandion*, osprey. The second sub-family is *Accipitrina*, the hawks—genus I. *Aster*, the gos-hawk; genus II. *Accipiter*, the sparrow-hawk. The third sub-family is the *Falconina* or true falcons—genus I. *Falco*, including the jer falcon, the peregrine, the hobbys, the kestrel, and the merlin. The fourth sub-family is the *Buteonina*, the buzzards and harriers—genus I. *Buteo*, embracing the three buzzards; genus II. *Pernis*, represented by the honey buzzard; genus III. *Circus*, comprises the three harriers. The fifth sub-family is the *Milvina*—genus I. *Milvus*, the red-kite; genus II. *Elanus*, the swallow kite, last noticed.

DIVISION II.

FAMILY IV. *STRIGIDÆ.*

THE OWLS, *Generic Characters.*

The owls, or night birds of prey, are so different from the other raptores—in their large head, staring eyes, and peculiar facial expression—as not only to separate them, but to suggest that Nature has left a blank between them and the diurnal birds of prey. They are distinguished by their large round head, short neck, broad rounded wings, short tail, and peculiar soft, downy plumage, feathered tarsi, versatile outer toe, and much hooked bill and claws. The unusually large eyes are fixed in their orbits, or have very little motion, directed obliquely forward so that an object may be seen by both at once, like those of man; but to make up for this the head can turn round as on a pivot. To "stare like an owl," as "grave as an owl," are common expressions for grotesque gravity, dullness, or stupidity, like an owl at noon. Their large eyes enable them to see their prey in the twilight, and even at night; and the extreme development of the external aperture of the ear, with its fringes, is also wisely formed to catch the faintest sound, as if Nature had taken pleasure in enabling them to fulfil the peculiar mission assigned them in keeping down an exuberance of those destructive creatures which roam about in the dark; but, along with their sensitive hearing and sight, when we add the peculiar lightness and noiselessness of their flight, the care and perfection of Nature is complete. The margins of their wing feathers being loose and divided into fine filaments, offer the least possible resistance in passing through the air, while their progress is by a slow and gentle motion of them, which did not escape the observing eye of Nature's poet, who in "Henry VI." makes Warwick attribute the loss of the Battle of St Albans to the slow use of his own soldiers' weapons—

"*Their* weapons like to lightning came and went;
Our soldiers—*like the night owl's lazy flight*,
Or like a lazy thrasher with a flail—
Fell gently down as if they struck their friends."

They prey on small quadrupeds, such as mice, or birds, moths and beetles, some of them occasionally on fishes. Small birds and mice are usually swallowed whole, the indigestible parts disgorged in pellets. Their nocturnal habits, gloomy haunts, harsh and "eerie" hooting, have characterised the owl as a bird of ill omen, which is borne out by Henry VI. exclaiming—just before being stabbed by hunchback Gloster—

"*The owl shrieked at thy birth, an evil sign;*
Dogs howl'd, and hideous tempests shook down trees;
The raven rook'd her on the chimney's top,
And chattering pies in dismal discords sung."

And in the same play, Edward orders in the dead body of Clifford, saying—

"Bring forth that *fatal screech-owl to our house*,
That nothing sung but death to us and ours;
Now death shall stop his dismal threatening sound,
And *his ill-boding tongue* no more shall speak."

The conjuror Bolingbroke also says to the Duchess of Gloster before calling up the spirits—

"Patience, good lady; wizards know their times;
Deep night, dark night, the silent of the night,
The time of night when Troy was set on fire;
The time when screech-owls cry, and bandogs howl,
And spirits walk, and ghosts break up their graves—
That time best fits the work we have in hand."

And when Queen Margaret bids Suffolk curse his enemies, he replies—

Suff. "Should I not curse them? Poison be their drink!
Gall, worse than gall, the daintiest that they taste!
Their music, frightful as the serpent's hiss;
And *boding screech-owls* make the concert full!
All the foul terrors in dark-seated hell—
Q. Mar. Enough, sweet Suffolk; thou torment'st thyself."

In Julius Cæsar too, with his sword drawn, what a picture of the thunder-storm Casca draws—

"O, Cicero,
I have seen tempests when the scolding winds
Have riv'd the knotty oaks; and I have seen
The ambitious ocean swell, and rage, and foam;
But never till to-night, never till now,
Did I go through a tempest dropping fire;
And, yesterday, *the bird of night did sit,*
Even at noon-day, upon the market-place,
Hooting and shrieking."

And when Lady Macbeth has urged Macbeth on to murder Duncan, she cries—

Lady M. "Hark! Peace!
It was the owl that shriek'd, the fatal bellman,
Which gives the sternest good-night."

And when Macbeth enters, saying—

"I have done the deed. Did'st thou not hear a noise?"

All she says is—

"*I heard the owl scream* and the crickets cry;"

No doubt considering the shriek of the owl the worst of omens, and I merely give these quotations to bear this out. Burns also identifies the owl with the most gloomy thoughts and situations. For instance, he says, if you want the antiquary, Captain Grose,

"*By some auld, houlet-haunted biggin'*,
Or kirk deserted by its riggin',
It's ten to ane you'll find him snug in
Some eldritch part
Wi' deils, they say, Lord save's! colleaguin'
At some black art."

And in "Tam o' Shanter" he says—

"Tam skelpit on through dub and mire,
Despising wind, and rain, and fire;
Whiles glowering round, wi' prudent cares,

> Lest bogles catch him unawares ;
> Kirk Alloway was drawing nigh,
> *Whare ghaists and houlets nightly cry.*"

He also begins a pretty long poem "To the Owl" with

> "Sad bird of night what sorrows call thee forth
> To vent thy plaints thus in the midnight hour ?
> Is it some blast that gathers in the north
> Threatening to nip the verdure of thy bower ?"

And all for what? Simply because some of the most useful birds in creation select the retired and suitable shelters for the day, and enter upon their useful mission at night, sometimes giving vent to their own peculiar hooting cry. They generally nestle in the holes of trees, old nests, crevices of rocks, holes in old buildings, dovecots, ivy, and some of them on the ground. Like all the *Raptores* they are early breeders ; most of them are nocturnal or crepuscular feeders, sallying out at the close of day when other birds are retiring to roost, and when the creatures which form their food are also quitting their holes to commit havoc in fancied security during the silence and darkness of night—not knowing that the owl is noiselessly watching them from above. Shakespeare was not a bad naturalist when he makes Macbeth say—

> "Light thickens, and the crow
> Makes wing to the rooky wood :
> Good things of day begin to droop and drouse ;
> Whiles night black agents to their prey do rouse."

Some of the species, such as the *Hawk Owls*, which come nearest the diurnal birds of prey, pursue their mission the same as the *Falconidæ.* One peculiar feature of the *Strigidæ* is the almost perfect similarity of their eggs in all but size, being all white and nearly round, a distinctive feature we should hardly expect in birds so different in size and haunts—the eggs laid in the holes of trees and old ruins being the same as those laid on the ground. Another generic feature, is the larger the facial disk the more developed is the sense of hearing—hence the more nocturnal ; and the less the disk and ear, the nearer the species approach to the diurnal birds of prey. Linnæus placed all the owls in one genus, *Strix ;* enlarged since into seven genera, viz. :—Genus I. *Bubo*, or eagle-owl ; II. *Otus*, eared-owl ; III. *Scops*, or Scops-eared owl ; IV. *Surnia*, hawk-owl ; V. *Strix*, screech-owl ; VI. *Ulula*, hooting-owl ; VII. *Noctua*, night-owl.

THE GREAT-HORNED OR EAGLE-OWL.

(Strix Bubo.) Linn. (Bubo Maximus.) Sibbald.

> "They say the owl was a baker's daughter—
> Lord, we know what we are, but know not what we may be."
> —*Ophelia.*

This is the largest owl found in Britain, if not in the world, equal in size to some of the largest eagles; but as it does not visit the grey old city, and very seldom seen in Britain, I shall merely glance at it in passing, as my young friends may wish to know what a "Great-Horned Eagle Owl" is like. In colour and form he is very like his little brother, the common long-eared or horned owl, and his "Great Horns" are simply long feathers on each side of his head, right above his large, bright orange eyes; and his name of eagle is taken from his great size and colour. The male is 24 inches to end of tail, and 58 inches in extent of wings. The female is 26 and 61 inches; the tail about 11 inches long. It builds its nest on the rocky side of mountains, or on lofty trees, in the North of Europe. Lays three or four eggs, 2⅛ by nearly 2 inches—the roundest of all birds' eggs. They take about thirty-six days to hatch. Linnæus, the great authority, "found a nest in which the first egg was laid on the 13th of April, two others a week after; of which two were hatched on the 19th and the other on the 22nd of May." The wings are long, of great breadth, and rounded. The claws are long, much curved, and very sharp. It preys upon fawns, rabbits, ducks, grouse, rats, &c. Like all the rest of the family, the plumage is very soft and blended with down. The general colour is reddish yellow, spotted and barred with dark brown. The facial disk extends two-thirds round the eyes.

THE LONG-EARED OWL—COMMON OR HORNED OWL.

(Strix Otus.) Linn. (Otus Vulgaris.) Flem.

> "Who shall tell Priam so, or Hecuba?
> Let him that will a screech-owl aye be called,
> Go into Troy and say there, Hector's dead."
> —*Troilus and Cressida.*

This owl is found in most of our woody districts, especially in fir woods. The general colour is buff or reddish yellow, minutely and beautifully mottled with white, brown, and black, and light red—hence it is called the mottled tufted owl. The plumage is extremely soft; the wings long and very broad; the facial discs and ruff round the eyes are complete; the eyes are very large, and the ear developed to its greatest extent, which makes the long-eared owl the most typical and perfect as a nocturnal bird of prey. The conch of the ear extends in a semilunar form from over the eye to the very base of the lower mandible—its posterior elevated margin being 3 inches long, its anterior raised into a semicircular flap or operculum beset with recurved feathers. Its long tuft of six or eight raised feathers, called ears, about 1½ inch long, easily distinguishes it from the rest of our indigenous owls, by which it is readily known. The irides are orange; the legs and toes are clothed with pale buff-coloured feathers to the claws, which are long, very sharp, and curved. It generally preys on field mice and moles—as many as five skulls of mice have been found in its stomach at one time—the mice being swallowed entire. To be such a common bird, it is amusing to see how little our ornithologists seem to know of its habits, and how much they disagree. Some maintain that it is strictly nocturnal, "seldom seen hunting for prey before it is quite dusk," and that "if Sol sometimes surprises the nocturnal wanderer feasting on his prey in the meadow, he seeks the friendly shelter of the hedgerow or neighbouring wood, where he hopes to remain in peace until night again throws her veil over Nature. Vain are his hopes, for a prying wren has discovered the intruder, and sounds an alarm. The robin, the whitethroat, the chanter, and other birds hasten to the spot. First and foremost are the chaffinches—they buffet him, peck at and menace him on every side, while the owl turns his eyes from party to party, evading their blows as well as he can. The uproar is now great, each bird in his mother tongue venting execrations against the poor owl. On such occasions one may get within a few feet of it. At length he takes wing, flies a short distance, pursued by a chaffinch or two. On alighting he is still persecuted, and unless he gain some suitable roosting-place among the fir trees the alarm-notes of these watchful birds are heard the livelong day." This is a very pretty picture of its utter inability to hunt during the day, for as small birds are always flying about in the daytime, the owl would be continually mobbed, according to Mr Hepburn, one of Macgillivray's correspondents. Mr Luke and Mr Hewitson, on the other hand, declare that "this species does *not* confine its flight entirely to the darker hours, as we have met them in the woods sailing quietly along, as if hawking, on a bright sunny day, and *invariably* found in or around the nest feathers and other remains of birds; in one case a freshly-killed chaffinch, in another the wing of a snipe, and several smaller birds; and in a pellet the indigestible pad of a young hare or rabbit." So here are two totally different versions. Macgillivray admits that "of its nocturnal flight he is unable to speak." Nor do authors agree one whit better about the number of eggs or mode of hatching them. Mr Luke thinks three is the usual number, and that the bird commenced incubation when the *first* egg was laid, as "there could not be less than eight or ten days' difference in the age of the young ones he saw, so that some days must intervene between the production of each egg, the female beginning to sit as soon as the first eggs are laid—a provision which enables the old birds the more readily to supply the demands of their voracious progeny." Mr Alfred Newton, on the other hand, says the "usual number of eggs are four, although the gamekeeper found a nest with five eggs, and his brother saw six young ones in the same nest." He also says he "has got wheatears, willow-wrens, and chaffinches, or at least their remains, in its nest;" and regarding incubation he says—"My experience is opposed to Messrs Luke's opinion, for I think it delays incubation *until its clutch of eggs is completed*." These different opinions bear out my observations on the varying habits of birds accommodating themselves to different localities and circumstances, although in the main true to their species. Like the rest of the family it is an early breeder. On the 17th of April 1863 I got a nest in a larch and Scotch fir wood at Allanhill (since cut down) with three ripe young ones and three rotten eggs—an unusual thing; and next day, the 18th, I got another nest in the old fir park on Tentsmuir with five eggs, some of them fresher than others, which shows that this bird had been later in breeding, or had been harried before. But I have got young owls nearly ripe as early as the end of March—two of which I kept for about a year. They were taken from a small wood called Clash Wood, about five miles from St Andrews. There were three in the nest and two rotten eggs. It may possibly be owing to its early breeding that the owl is set down as the representative bird of January in Cassell's "Birds of the Month"—

"January 1891 owl;"
"What songster wakens when across the snow

> The New Year enters at the midnight still?
> A dark form flits from out the leafless bough,
> The owl wails forth a greeting wild and shrill."

On the 1st of May 1853 I got a nest with four young ones on one of the large fir trees on Tentsmuir; there was considerable difference in the age of the birds, for some were nearly ripe, and one was far from being fledged, which proves that, in some nests at least, some are hatched before the others. On the 19th of April 1856 I got another nest on one of the large Scotch fir trees where I got the last; there were three young ones and one egg still unhatched. The oldest seemed to be about four days old; the next two days; and the other newly hatched—the two youngest were blind, the other not so. To show how keen the mother was in her incubation—although the nest was upwards of thirty feet from the ground—she did not leave her post until I climbed up and touched the nest. The male flew off when I approached within twenty yards of the tree. The young owls were covered with grey-white down (or as nearly white as could be). They have no "bars of faint brown when newly hatched," as some authors assert, although I have got their nests when the young were older—dusky white, with the bars beginning to shine through the down. Their bills were completely developed and well formed, of a fine leaden blue colour. They were too young to emit any cry, or be aware of any intruder. On lifting the oldest one it half-opened its eyes, then instantly shut them as if the light affected them. The others could not open theirs; the youngest was much swollen about the eyelids, and the little creature crowdled down and pushed itself underneath its fellows as well as it could. The formation of the large opening for the ear was quite distinct. I left the hatched young, but took the egg, wrongly thinking it was addled. I carefully inspected the nest—it was an old carrion crow's repaired, with the addition of some fur; there were several old fir cones in it as large as the egg. I picked them out, as they were uncomfortable to the young ones. The owl might have had as much instinct as have pitched them overboard herself. I lay at the foot of a tree, six yards off, to watch the old bird, as I knew she would not remain long away from the young so recently hatched. She soon came and alighted on a tree about 600 yards off, gradually coming nearer until within forty yards; then noiselessly glided amongst the trees until close to the one on which the nest was; then rose about two feet above the tree and alighted down upon the nest with as much ease and precision as any diurnal bird, although the sun was shining brightly. It evinced no wavering in its flight, nor was the tree in any dark place of the scattered wood, which is merely an old enclosed park with a number of scraggy birch trees, with here and there a very large Scotch fir, on one of which the nest was. Twenty of these large trees are at intervals growing around the outskirts of the deserted old park, on one of which I got both a kestrel's and a carrion crow's nest within four yards of each other; the one with eggs, the other with newly-hatched young. Although the owl came quite near me I could not detect the tufted feathers on the head—in flying they lay these long feathers flat; but, like the cockatoo with its crest, the owl can erect or lay these "horns" or "ears" at will. Neither male nor female emitted any cry when they flew away; but, at a distance, the male twice uttered a peculiar cry, betwixt a screech and a champing of the bill, and as he glided amongst the trees the wood pigeons flew hurriedly away as if frightened. After the female was on her nest again she did not leave it, although I was tramping about and climbing trees in close proximity. It was a bright sunny day, yet these owls showed none of that exaggerated awkwardness mentioned by Mr Hepburn in Macgillivray's "British Birds"—one of his authorities. There were chaffinches, robins, tits, and other small birds in abundance, yet they took little notice of these owls, and certainly *did not mob them*, and could not, for the owls though disturbed flew as precisely as they did. Within four yards of the nest the small birds were sporting amongst the branches. I saw a pair of robins engaged in active love enjoying themselves on a tree quite close to the owl's nest. The nest itself was near the top of the tree and exposed to light and sun. The pellet castings, as usual, consisting chiefly of the remains of mice, lay scattered on the ground.

On May 14th, 1864, I got a nest, with four deep-sitten eggs, in a low Scotch fir near the outskirts of Kinglassie wood (since cut down). It was in an old carrion crow's, newly lined with wire-grass and heather roots, with soil attached; and lined with softer grasses, a few stray horse hairs, and a small bunch of cow hair placed there by the owls to raise up the inside of the old nest to make it flatter and drier—there being about three inches of the roots and soil, and an inch of the softer grasses. When I came near the tree the male was sitting on a larch fir about ten yards of, and flew noiselessly, but somewhat clumsily, away. The female sat until I began to climb the tree. They both flew away and did not return while I was there, although I was fully a quarter of an hour inspecting the nest. I left the eggs, as I saw from their blae colour and the bird's reluctance to quit the nest that they were nearly hatching. I returned in a fortnight, climbed the tree and found the young all dead—no doubt the work of civilization and the gun.

Next year, in the end of March, a nest was got with two young ones and two eggs—all were taken. A fortnight after, the same bird had four eggs in an old carrion crow's nest a few yards away. These being also taken the owl returned to the first nest and had other four eggs. I have known of six eggs being found, and as many as eight taken from one nest, possibly some of them old ones; but four is the usual number. This year, (1892) I know of two nests being got on the 3rd and 5th of April, with four eggs each.

If, as Lady Macduff says, "the poor wren, the most diminutive of birds, will fight for her young ones in the nest against the owl," even so will the owl fight against man. To prove this and to show the owl's courage—On May 14th, 1887, a nest with three ripe young ones was found in Magusmuir wood—near where Archbishop Sharpe was murdered; on climbing up to harry them the lad was so violently attacked by the old bird that he was forced to come down the tree and get a long-pointed stick, with which he made a hole in the under side of the nest to let the young ones fall through.

I have often seen the owl in autumn sailing noiselessly over stooky fields hunting after field mice, floating, like a feather, on the air; then suddenly pounce down amongst the stooks or stubble, and remain—possibly devouring its prey—until I came near, when it would rise and fly away. It could easily be shot when thus engaged in dusky twilight and near dark, also in the moonlight. When it is known that an owl will destroy from 6,000 to 8,000 mice annually for itself, the great number destroyed for its brood—thus silently and at night when the farmer is asleep—proves that it is one of his best and most faithful servants. As it is questioned if it destroys rats, the following paragraph which recently appeared in the *East of Fife Record* speaks for itself:—

> "On Sunday evening, while a number of people were going homewards to Pittenweem from the Waterworks at Ovenstone, and while passing over the bridge which crosses the Dreel burn south of Grangemuir, an amusing incident was observed. The flutterings of a large bird (which was afterwards discovered to be an owl) over the course of the burn drew the attention of the onlookers. After viewing the movements of the bird for some time it was seen to make a sudden dart downwards into the water course, and rise again with what was distinctly seen to be a large water rat, which struggled hard to gain release from its captor. The owl, however,

kept master of the situation, and flew northwards to the adjacent woods of Grangemuir, in which he was lost sight of."

And on May 23rd, 1887, along with others I saw an owl hovering above Lochty burn, when it also suddenly pounced upon and bore up a large brown rat in its talons, and flew away with it to a wood close by; which proves that owls prey upon rats as well as mice.

I had to cut all the food for the two young owls I kept, as they would not tear it in pieces for themselves, and as the bills of all owls are nearly hidden by bristly feathers this seems natural; but as they grew older they swallowed mice and such birds as sparrows entire, beginning at the head; and after swallowing all but the tail and legs they paused for a short time to take breath, then completed the operation, feathers and all—the refuse bones and feathers or fur being afterwards vomited in pellets, which is characteristic of the family. In fact, it is essential that tame owls get their food with the fur or feathers on, as many die from getting their food too clean. I kept them in a large darkish outhouse; they never became very tame or sociable, but hissed liked cats and made a snapping noise with their bill, and seized their food with avidity by their talons. They generally both sat upright, staring with their large, lustrous, orange-coloured eyes, which shone like little balls of fire in the semi-darkness. To show that their eyes are lustrous in the dark—An uncle of mine, a coastguardsman, many years ago, when going his usual beat with his gun at night along Kinkell Braes, saw a pair of eyes staring at him on the brae between the "Maiden Stane" and "Kinkell Cave." He felt eerie, and hailed the suspicious-looking object to speak in the king's name, or he would fire. Receiving no answer he hailed again and again, while the eyes kept staring at him. Getting irritated and afraid, he levelled his gun and fired; something moved, then all was dark. Mustering courage, he went to the place and found a fine specimen of the horned-owl, shot dead. It had been sitting on the brae quite close to him; and this agrees with my own observation of the owls I had when sitting on their perch in the dark. The male is 14½ inches to end of tail (which is short—an inch shorter than the wings when closed), and 36 inches in extent of wings. The female, as usual, is larger, from 16 to 17 inches to end of tail, and 40 inches in extent of wings. The eggs are about the size of a wood pigeon's, but rounder.

THE SHORT-EARED OR HAWK-OWL.

(Strix Otus.) Linn. (Otus Brachyotos.) Cuv.

"The night to the owl and morn to the lark."—*Shakespeare.*

In colour, size, and softness of plumage this owl resembles the last (whose horns of ten or twelve feathers project an inch), only this one is darker, and the feathers more streaked with liver brown—hence it is called the *streaked*-tufted owl, as the other is the *mottled*-tufted owl; but the head is smaller; the so-called horns of three feathers much shorter, projecting only half-an-inch; and the disc round the eyes much darker, which easily distinguish them. The tarsi and toes, also feathered to the claws, are stronger than the last; the bill is also stronger. It is well-named the hawk owl or mouse hawk, as it is liker the day birds of prey than most of the owls, and is one of the links between the Falconidæ and them. As the ear-tufts are hardly noticed when the bird is dead it is sometimes mistaken for another species. Although its prey chiefly consists of field mice, &c., it will snatch up chickens from the door and chase pigeons like a sparrow-hawk in daylight; it strikes down and carries off grouse—birds double its weight; it also preys on small birds, such as larks and buntings. Its nest, unlike the rest of the owls, is placed on the ground amongst heather, sedges, or rushes. The eggs, usually five, are a little larger than those of the last, being 1⅝ by 1¼ inches. Fifty years ago it bred on Priormuir and Tentsmuir; but during all my rambles for many years I have not found one of their nests, and I am not aware of it breeding now in Fife, unless on the Lomond Hills. Its nest is seldom found in the south of England, where it is considered migratory from October to March, and is called the "Woodcock Owl," from its coming and leaving the same time as that bird; but in the moors and wilder districts of Scotland it is generally distributed. It merely scrapes a hollow amongst the heath and lays on the bare ground, sometimes in a bunch of long heather; and in fenny ground amongst sedges or rushes. As I have repeatedly mentioned Tentsmuir, I may say it is a wide stretch of moorland between the Firth of Tay and the river Eden—bounded on the east by St Andrews Bay, where the Norsemen and Danes often landed, and the word *Tents*-muir probably takes its rise from temporary settlements in tents. Little is generally known of this interesting part of Fife. The steamers pass it by on the north; the railway shunts it by on the west; the Eden fences it on the south; and the ripples or breakers of St Andrews Bay (where lie the sunk ribs of the steamer "Dalhousie" and other wrecks) guard it on the east; and yet it is within four miles of our old city by sea, near the submerged banks of Tay, where at low water I have counted about fifty seals sporting at one time on sand banks, which, according to the old historian, George Buchanan, were originally begun by a sunken Danish fleet. This lonely moor, extensive sands, and booming sea reminds one forcibly of Byron's "Address to the Ocean," in which he says—

> "There is a pleasure in the pathless woods,
> There is a rapture on the lonely shore,
> There is society, where none intrudes,
> By the deep sea, and music in its roar;
> I love not man the less, but Nature more,
> From these our interviews, in which I steal
> From all I may be, or have been before,
> To mingle with the Universe, and feel
> What I can ne'er express, yet cannot all conceal."

A local antiquarian—Mr David Harley, Builder, Tayport, originally of Leuchars, who died in 1887, and as man and boy had known Tentsmuir for seventy years—had "played beside the Foremunt Loch and the Lang Loch when their waters smiled in the sunshine or dashed in mimic wrath against the clumps of reeds which formed their shores; where now, as a consequence of drainage, there are nothing but stretches of sandy moorland, dotted by patches of heather and stunted marsh grasses. On the shores of these lochs flourished dense masses of whins, which grew to enormous size, their stems sometimes eight or nine inches through, and in their branches the wood pigeons built their nests." Many a time would he tell of his having (when a boy) harried their nests three feet from the ground. In after years Tentsmuir, with its wide range of history, extending from the flint age and the shellmound builders down through the stone and bronze ages (to what may be termed recent antiquities), was to him an open book. He was often consulted as to the past of Tentsmuir—he pointed out the localities where the flint implements and other antiquities for which the district is famed are to be found; the sites of old villages; the hearths of fires—cold for centuries—lying deep beneath the present surface of the moor; the strange circular dwellings, whose origin lies hid in the mists of the past; the shellmounds and kitchen middens of early races of men were always examined with keen interest, under his guidance and shrewd remarks. In reference to the flint implements, he said he recognised the workmanship of one particular individual, the excellence of whose handiwork he considered unmistakable—being a mason and lapidary himself his opinion had weight. He always referred to this workman with admiration as "that clever fallow." "I've found flint arrowheads," he would say, "in different pairts o' the muir a' the way frae the Channel Wuds to Reres Farm, some o' them wi' very little wark upon them, ithers as finely shaped as if intended for jewellery; but I could aye tell that clever fallow's wark whenever I got my hand's on't." It was no use pointing out that flint implements represented a vast period of time, when many generations of flint workers must have lived and died, left or lost their implements—he adhered to his point, and referred to a particular place on the moor where "that clever fallow" lived. Certainly the finest specimens of flint workmanship have been found around the spot indicated. He knew every foot of Tentsmuir, and picked up many fine specimens of flint work; but this extensive moor is equally interesting as a haunt for our feathered friends—especially sea-birds—thousands of terns, plovers, ducks, curlews, redshanks, and other birds come there annually to breed, both on the surface of the moor and in the many rabbit burrows. Already, on the 8th of April this year, 1892, mallard and teal ducks' eggs have been got, as well as long-eared owls', and a stray capercailzie cock was also seen in the old Fir-Park Wood at the same time; while grouse, recently brought to the moor and protected, are increasing rapidly, and possibly a short-eared owl may also be seen again. If disturbed in its breeding haunts this owl flies a short distance, stares at the object of alarm, and visibly erects its short horn-like feathers. If a dog be there it hovers above it, utters a querulous cry, and gives an impatient snap of its bill, like an angry horse champing its bit, as I have heard the long-eared one do in the old Fir-Park. It is about two inches larger than the last. The male is 15 inches to the end of tail, and 17 inches to the tip of wings when closed, and 38 inches in extent of wings; the female's two inches larger, the tail, as in all owls, being comparatively much shorter than the falcon's or hawk's. Like all owls it has very large eyes, the irides bright gamboge yellow (like most of them), and its ears are also furnished with a conch and an operculum. To show that this owl is now rare—when the Marquis of Lothian's gamekeeper was grouse-shooting the other year, near the top of the "Carter," he shot one, in noticing which the press said—"though this bird is not unfrequently met with in Scotland and England, this is the first specimen said to be killed in the neighbourhood of Jedburgh."

THE SCOPS-EARED OWLET OR LITTLE-HORNED OWL.

(Strix Scops.) Linn. *(Scops Aldrovandi.) Will and Ray.*

"There, hooting, I will list more pleased to thee
Than ever lover to the nightingale."—*Burns.*

This pretty little owl is so very rare in Britain that, perhaps, I should not have noticed it here, only I wish to tell my readers that—although it is the smallest of all our owls—it is so very like the largest, the great-horned eagle owl, as well as our common long-eared owl, that I could not pass it by without saying it is only 7½ inches long—not so big as a blackbird, but is as anxious and as able to seize a beetle or a moth, or even a shrew mouse, as the eagle owl is to pounce upon a fawn, a rabbit, or a hare. It has all the characteristics of the larger owls. It nestles in the fissures of rocks and holes of trees, and lays four or five roundish white eggs, 1⅛ by 1 inch, the smallest of the whole. It is very common in Italy, where it is remarked for its plaintive cry of *kew, kew,* repeated at intervals of two seconds, all night long; but, no doubt,

The hooting of this little owl will please,
When heard within its own retreat,
For even will the soughing of the trees,
If heard in peace of mind, be sweet.

THE SNOWY OR DAY OWL.

(Strix Nyctea.) Linn. *(Surnia Nyctea.) Dumeril.*

"When owls do fly
On the bat's back I do fly."—*Ariel, in "The Tempest."*

Except the great-horned eagle owl, this beautiful owl is the largest found in Britain; but it does not breed with us, only in the Orkney and Shetland Isles. Its head is six inches across, including feathers. The facial disc is not complete, and does not extend above the eyes. It hunts during the day as well as night—in this and other respects it approaches nearer to the *Falconidæ* than the rest of the owls. Its flight is more rapid and active, less buoyant, and pursues such birds as ducks, grouse, or pigeons on the wing, and it strikes them—not unlike a peregrine falcon—which its longer tail, wings, and claws enable it to do. It also pursues rabbits and hares when they are running, and trusts more to pursuit than surprise—unlike the more nocturnal owls; its plumage is also closer than theirs. It preys upon all kinds of animal food, and even on fishes, which it seizes with its very sharp claws. It is found in all the northern parts of the world. It is the *Harfang* of the Swedes. Its colour is white, spotted and barred with brown on the head and neck; the legs and toes are covered to the claws with hairy-like feathers; its bill is also covered almost to the tip; iris bright yellow. It has its nest on the ledges of rocks, also on the ground, and lays three or four white eggs. The round white eggs and feathered legs of all the owls, like a well-agreeing human family, knit them together better than most families of birds. The male is 23 inches long to end of tail, and 56 inches in extent of wings. The female, much larger, is 26 and 65 inches. But, as we have no cliffs high enough about St Andrews, I shall leave our snowy friends to the wilder rocks and cliffs of Scandinavia.

THE BARN OWL, SCREECH OWL, WHITE OWL.

(Strix Flammea.) Linn.

> "Now the wasted brands do glow,
> Whilst the screech owl, screeching loud,
> Puts the wretch, that lies in woe,
> In remembrance of a shrowd."
> —"*A Midsummer Night's Dream.*"

Except the snowy owl, this is the lightest coloured of all our owls, and found in every part of Britain where there are ruins or cliffs suitable for it. This feathered friend of the farmer is well-named the barn owl, for it selects the out-of-way corners and holes of barns, ruins, and cliffs (not liable to interruption) for its nesting-places. It is essentially nocturnal, and lives chiefly on mice, as a sailor lives by the sea, or a swallow by the air. On the approach of twilight it may be seen gliding from its hiding-place, like a phantom, with a noiseless flight which belongs to the owls alone, enabling them in silence and darkness to pounce upon creatures liable to over-abundance, which also choose night to fulfil their mission on the ground below them. And as the screaming swift issues from ruins on the approach of gloaming—skimming through the air in search of flies—so may the barn owl be seen on the approach of twilight stealing over the meadows or stooky fields, searching stackyards, and, like a feathered cat, as noiselessly entering an outhouse or barn in search of its prolific prey. It often seizes a mouse in each foot amongst the labyrinth of stacks, then perches on the top of one of them to swallow them whole. When we consider that 150 mice have been killed by a terrier in one stack (the produce of two and a half acres) about three feet from the ground, where the first six or eight sheaves meet, and a peck of grain separated from the ears so gnawed as to resemble coarse meal, besides what is done in the fields and destruction to grass roots, one must see the great good this beautiful and useful bird does; but which, like the kestrel, is so blindly shot down by the so-called keepers of game and killers of vermin. In connection with the present outcry about the mice plague in the Border Counties, R. Scot Skirving says, in the *Scotsman* of April 23rd, 1892—

> "In view of the present plague, I trust it may result in opening the eyes of game preservers to the folly of killing all birds of prey—but especially those farmers' friends, the kestrel and the owl. By the way, I am assured that it was 20,000, and not 1,000 owls, that were advertised for in London, in consequence of the rage for skins to deck (?) ladies' hats. I conclude by saying it is impossible that any Commission can throw more light upon the subject than has been obtained during the last eighty years. I am glad to see farmers now think that even rooks are not merely birds which lead wholly evil lives."

Another writer says that even "magpies destroy numbers of mice, swallowing them entire," as he had "frequently found them in the gizzard entire." Thus we see

> "There is a soul of goodness in things evil,
> For our bad neighbours make us early stirrers;
> Thus do we gather honey from the weed,
> And make a moral of the devil himself."

But farmers are beginning to find out that even the persecuted mole, like the hedgehog, is a friend to them, by preying on mice, besides turning up the soil, which helps the roots of the grass, one writer saying the only farmer he knew that made £78,000 off his farming paid mole-catchers for putting moles upon his fields. Some authors say the barn owl rejects the shrews *(Sorex araneus.)* Others have found shrews entire in its stomach, and some counted no less than four shrews' skulls at one time in it. It is inactive from sunrise to sunset, sitting nearly erect, with retracted neck and large eyelids closed (like a tired-out judge over a weary case) in some obscure nook or hole, sleeping (while others are hunting or basking in the sunshine), waiting till twilight enables its peculiar structure of eye and ear to see and hear objects distinctly. If surprised in the daytime it is as helpless as a startled pigeon at night, or a fish out of the water; for, instead of flying away, it stares like a fool in drink, raises its feathers, hisses like a cat, snaps with its bill, and blinks with its large, black, lustrous eyes. And should it be driven from its haunt it is dazzled and bewildered—like a modest girl suddenly left alone in a crowded city, before woman assumed the airs and the duties of man. It flies with a hesitating flight, gladly seeking the shelter of some dark retreat. A barn owl seen during the day excites the rage of the smaller birds, which attack and tease it with impunity, chief of which is the bold little blue-tit and the lively chaffinch; but, if imbecile by day, the barn owl assumes a very different character when darkness (which bewilders them) restores it to its proper element; when, with keen eye and noiseless wing, watching for prey it becomes activity itself—hence "The night to the owl and morn to the lark." No doubt its harsh shriek (from which it derives its name) is apt to startle the lonely traveller if near "Some howlet-haunted biggin'," as Burns has it, or as he wrote among the ruins of Lincluden Abbey—

> "*Where the hoolet mourns in her ivy bower*,
> And tells the midnight moon her care."

Or as Sir Toby Belch says in "Twelfth Night"—

> "*Shall we rouse the night owl in a catch*, that will draw three souls
> Out of one weaver? Shall we do that?"

Without entering upon that egotistical and uncharitable feeling which made Macgillivray say—"If the belief of ghosts had not been extinct among the *more enlightened*—to which class *I and my readers belong*—I had taken *that shriek for the cry* of the beautiful, *guilty, and deservedly miserable Queen Mary*." Be that as it may, I say with Hamlet "Give every man his deserts, who shall escape whipping?" The shriek of this owl at night, in lonely places where few persons enter without some feeling of awe, has given it a weird character, independent of any merely superstitious feeling; and this shrieking cry, unexpectedly heard in a kirkyaird, or among the ruins of some old monastery, castle, or cathedral, is apt to create an eerie feeling, when the shard-borne beetle with drowsy hum, and spectral bat on leathern wing, begin to flit about, and silence with darkness shrouds the earth ; " While overhead," as Wordsworth says,

> " Roared the loud blast, and *from the tower the owl*
> *Scream'd* as the tempest shook her secret nest."

> " For thou know'st in the days of innocency Adam fell,
> So, what should poor Jack Falstaff do in the days of villainy ? "

The barn owl has been accused of snoring—like a toper in his sleep ; but this has been traced to the cry of its young for food. It was once common in St Andrews, whose monastic seclusion and general decay, after the Reformation, suited its own secluded habits. It had its nest in the gloomy ruins of Cardinal Beaton's Castle, in the remnant cloisters and walls of Hepburn's Abbey, and in the holes of the once magnificent cathedral, as well as in the high cliffs, called the " scaurs," between the castle and the " Witch Lake." When the cathedral *debris* was cleared out by the Exchequer in 1789, " the only thing of interest they found"—says a local historian—" was a barn owl reposing under one of the stone coffins at the High Altar," supposed to be that of the young Archbishop Alexander Stewart, who fell with his father at the fatal Battle of Flodden, when the nobility of Scotland " were a' wede awa' " as the " Flowers of the Forest." And when Dr Johnson visited St Andrews in 1773 its gaunt ruins and grass-grown streets made him say : " When the city of St Andrews lost its archi-episcopal pre-eminence it gradually decayed ; one of its streets is now lost (?), and in those that remain there is the silence and solitude of inactive indigence and gloomy depopulation ;" and the Rev. James Hall, in his " Travels in Scotland" in 1807, also says : " The general aspect of the priory and other ancient monasteries, the cathedral church, the castle—the residence of the archbishops, and sometimes of kings —the streets grown over with grass and solid turf, and even the colleges, suggests nothing but the melancholy idea of former magnificence and grandeur, now in ruins"—hence the better retreat for the barn owl, which did not, however, in 1773, prevent the professors from giving surly Sam and Boswell, who accompanied him, " A superb treat to Dr Samuel Johnson." Poor, unfortunate young " Bob Fergusson" (the forerunner of Burns), who was a student in the University at the time,* records it thus—

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* I saw his signature, in pencil, behind one of the shutters, before the old east wing was pulled down.

"St Andrews town may look right gawsy,
Nae grass will grow upon her cawsey,
Nor wa'flowers of a yellow dye
Glour dowy o'er her ruins high,
Sin' Sammy's head, weel pang'd wi' lear,
Has seen the *Alma mater* there.
*Regents, my winsome billy boys!
'Bout him you've made an unco noise;
But, hear me, lads! gin I'd been there,
How I wad trimm'd his bill o' fare!
For ne'er sic surly wight as he
Had met wi' sic respect frae me.
Mind ye, what Sam, the lying loun!
Has in his dictionar laid doun?
That aits in England are a feast
To cow an' horse, an' siccan beast.
While in Scots' ground this growth is common
To gust the gab o' man and woman.
Tak' tent, ye Regents! then, an' hear
My list o' gudely hameil gear,
Sic as ha'e often rax'd the wyme
O' blyther fallows mony time;
Mair hardy, souple, steive, an' swank,
Than ever stood on Sammy's shank."

Then follows the list of oatmeal haggis, the sheep's head, &c. (Boswell, in his "Tour to the Hebrides," records this "superb feast" so genially "flyted" about by Fergusson—"The Professors entertained us with a very good dinner, present—Murison, Shaw, Cook, Hill, Haddo, Watson, Flint, and Brown." —*Thursday*, 19*th August* 1773).

In 1839, when a boy, I got two young barn owls from a nest of four, taken out of a beam-hole in the south gable of the old castle, close to the window where Cardinal Beaton's body was slung over to please the populace who clamoured "to see my Lord Cardinal" (who had just been murdered by Norman Leslie's uncle and others). I kept them a long time. They lived upon all sorts of flesh, and swallowed mice and small birds entire. Since then I have seen both eggs and young taken by long ladders from the cliffs at the "scaurs." I believe I saw the last that frequented these cliffs and ruins; it was shot about 1854. Two were shot the year before. In May 1863, when on a bird-nesting expedition with two of my boys, we came upon an old barn owl asleep on the margin of a little stream past the "Rock and Spindle" at Kinkell. We stood within six feet of it quite unconscious of our presence. I threw a stone, which awoke it. It opened its large eyes and stared so oddly at us that we could not help laughing at its grotesque look. At last it flew noiselessly over the brae. But they have disappeared years ago, and are, so far as I know, not found in the vicinity of St Andrews. The nest is scantily formed of twigs and straw loosely arranged. They lay four, five, or six white eggs, 1½ by 1¼ inches, a little less than the long and short eared species, and not so round. This is the handsomest and most beautiful of all our British owls. The general colour is light reddish yellow, finely variegated with ash grey, each feather minutely undulated with darker grey, and marked near the tips with two white spots; all the under parts pure white. The tarsi are not so full feathered, and one distinction is the toes are thinly covered with hairy feathers, and the iris is bluish black—unlike most of the owls', which are yellow. The male is 14 inches long to tip of wings, which extend about an inch beyond the tail, and 35 inches across the wings; the female is 15½ inches long and 38 in extent of wings. The plumage is soft and downy, having all the buoyant characteristics of the family in a marked degree. The wings are long and broad; but the tail is comparatively shorter than the rest of the owls', being only 5 inches, against 6 or 7—the best proof that its buoyancy is so perfect as scarcely to need the short, narrow tail to check its descent upon its agile prey. How very different from the swift, long-tailed, heavy falcons or hawks, who swoop or turn with the speed of the wind, requiring all the length and breadth of tail to check their headlong plunge, thus showing the perfection of Nature, and her distinction between the night and day birds of prey. The lightness of the one, compared to their feathery bulk, makes their flight not only buoyant, but almost unsteady in its very buoyancy, enabling them not only to fly noiselessly at a close height above their prey and steal unawares upon it, but to snatch it up almost without the use of a tail at all; while the heavier day birds of prey need a longer rudder to enable them to perform their more rapid flight and still more sudden deviations—wise! wise! faultless designer!—convincing proof of the wisdom and broad perfection of the eternal source and soul of life.

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* Professors were then called Regents.

Mr Waterton, probably the best authority, as he almost domesticated the birds on his estate, says: "When it has young, it will bring a mouse to its nest every 12 or 15 minutes; but to have a proper idea of the enormous quantity of mice this bird destroys, we must examine the pellets which it ejects from its stomach in the place of its retreat. Every pellet contains from four to seven skeletons of mice. In sixteen months, from the time that the apartment of the owl on the old gateway was cleaned out, there was a deposit of above a bushel of pellets." Now, as the remains of eight or ten mice have been found in its stomach at one time in various stages of digestion—the bones, enveloped in the hair, being (as usual with all owls) ejected in pellets after the bird has retired to rest—the number of mice killed and swallowed entire must have been enormous, for it is surprising the quantity that can be squeezed into a sac two inches in diameter. He proves that it also preys upon fish, for he says: "On a fine evening in July, long before it was dark, as I was standing on the bridge minuting the owl by my watch as she brought mice to her nest, on a sudden she dropped into the water. Thinking she had fallen down in epilepsy, I was going to fetch the boat, but before I got to the end of the bridge the owl rose out of the water with a fish in her claws, and took it to the nest." He also says that owls have two broods in the year—at least, the barn and the short-eared owls, as he watched them on his estate. Mr Blyth, in the *Field Naturalists' Magazine*, also states another interesting fact, which proves that owls do not lay in regular daily succession like most other birds, for he says: "A nest of barn owls contained two eggs, and when these were hatched, two more were laid, which latter were probably hatched by the warmth of the young birds. A third laying took place after the latter were hatched, and the nest at last contained six young owls of three different ages, which were all reared." This shows that although the barn owl breeds like the rest of the tribe early, it seems in some cases to prolong incubation longer than other birds—all which I hail with pleasure, as bearing out my own observations that, while Nature moves in eternal order, there is no stereotyped rule in anything—not even in the tides and seasons—much less in the variations as shown in the making of birds' nests, food, or incubation. But as regards the unwise interference with her universal laws, I was glad to read in the Parliamentary News to-day (April 27th, 1892), regarding "the plague of field mice in Scotland," that

"Mr Channing asked the President of the Board of Agriculture whether his attention had been drawn to the increasing discontent among agriculturists in the south of Scotland as to the 'mice plague,' and to the urgent danger to sheep stock, owing to the serious deterioration of hill pasture, whether he should consider the resolutions passed at a meeting at Moffat on Saturday, 16th April, regretting the refusal of the Board of Agriculture to take action in the matter, and calling for a 'more exhaustive and systematic inquiry;' or will introduce or support a Bill temporarily prohibiting the further destruction of birds of prey and vermin, which have usually been found to keep mice down?

"The President of the Board of Agriculture—Yes, my attention has been called again to the ravages of the mice plague in certain Counties in

Scotland. I have received further communications from my hon. friends, the member for Lanarkshire (Mr Hozier), and the member for Kirkcudbrightshire (Mr Stewart), and from meetings of agriculturists in that part of Scotland. In deference to their representations, I have directed a further inquiry to be made. With regard to the Bill for the purpose of temporarily prohibiting the destruction of birds of prey and vermin, I apprehend that what is required is some remedy for the plague which will take immediate effect, whereas the operation of the Bill would be remote. I have no reason to believe, so far as presently informed, that the sudden appearance of the mice plague is due to the destruction of birds of prey and vermin, *which has been going on for years*. But if, on further inquiry, it is shown that a remedy can be supplied, either in that or any other direction, legislation will support or introduce any measure to be effectual for the purpose."

So here we see that, while I write this unassuming history of our feathered friends, the wholesale destruction of birds of prey —*which has been going on for years*—has at last been brought before our Imperial Parliament. In the interest of the farmers, we hope that further wholesale destruction of our birds of prey —called vermin, may be stopped; and

"May he that will not wish for such a hope,
Go home to bed, and, like the owl by day,
If he arise, be mock'd and wondered at."—*Henry VI.*

THE TAWNY HOOTING OWL OR IVY OWL.

(Strix Aluco) or *(Strix Stridula.)* Linn. *(Ulula Stridula.)* Mihi.

"Blythe ravens croak of death; and, when the owl
Tries his two voices for a favourite strain—
Tu-whit, tu-whoo—the unsuspecting bird
Forebodes mishap."—*Wordsworth.*

Next to the common long-eared owl and the barn owl, this is the most generally diffused of our indigenous owls—to be met with in all densely-wooded districts—preferring plantations which abound in firs and ivy, where it remains concealed during the day. It is more common in the Midland and Southern Counties of Scotland than the Northern. It is rare about St Andrews, although I have specimens in my collection got in the district, and have heard it in the old fir park on Tentsmuir. It is even more nocturnal than the barn owl; yet, according to Yarrell, it preys on leverets, young rabbits, moles, rats, mice, birds, frogs, and insects, as well as occasionally on fish, like its white congener. Its wings are not so long, nor its flight so rapid and buoyant, as the barn owl's, but quite as noiseless and ghost-like—hence it is not so well suited for beating a large extent of fields for mice, and is more of a promiscuous feeder. The barn owls are more expert mousers than this owl, which so far accounts for its preying on young game when they come in its way. They sometimes enter dovecots (as the death's-head moth enters bees' scapes), and, like cats, commit great havoc among young pigeons. Mr Colquhoun says he recollects nearly all the young pigeons in his father's dovecot "being devoured by a pair of brown owls;" but the good this owl does in its destruction of rats and mice far outweighs the ill. It is a little larger than the long-eared, short-eared, and barn owls. The one before me—a female, shot in the district—is 16 inches to end of tail, and 14 inches to end of wings, which, however broad and ample, do not reach to the tail by 2 inches. The tail is 7 inches long (against 5 in the barn owl's), and 34 in extent of wings; the male about 2 inches less. The wings being 2 inches shorter than the tail—instead of two inches longer—makes this owl measure less across the wings than the other three; and although its body is larger, it appears to be more so from the superabundance of downy feathers. The tarsi also are shorter, but strong, which, as well as the toes, being covered with feathers and armed with long, sharp, curved claws, make them appear still stronger. The iris is dark blue, like the barn owl's. The female is much redder than the male. The young, as usual with most birds, resemble the female till the second month. It is well named the tawny or brown owl, for its general colour is umber brown, mottled, barred, and spotted with brown, grey, and darker brown—all blended—which is well expressed in the one word "tawny." Its head is comparatively larger than any of the owls (except Tengmalm's.) It is 3½ inches across the face. The facial discs and ruff are complete, but narrower over the eyes, which are also very large, as well as the mouth, which is 1¾ inches wide. It is well named the "hooting owl," for it is very noisy at night, and easily known by its hooting cry, which is often alluded to by poets, and is the typical *hooting* owl, as the barn owl is the typical *screech* one; and, probably, from *Oo-Oo-Ow* the name of Owl was taken, as the generic name of *Strix* was taken from the screeching of the barn and other owls by Linnæus. Its throat, when hooting, is much extended in its well-meant tribute to love or cheerfulness—as happy and sincere as is the song of the thrush or lark. All the owls more or less hoot or screech; and Linnæus was not far wrong when he classed them all in the one genus *Strix*, as screechers, which, as already said, Shakespeare bears out in saying—

> " The bird of night did sit,
> Even at noon-day, upon the market place,
> *Hooting* and *shrieking*."

In "Love's Labour Lost," he alludes to the hooting owl by making *Winter* sing—

> " When blood is nipp'd, and ways be foul,
> *Then nightly sings the staring owl,*
> *To-who ;*
> *Tu-whit, to-who*, a merry note,
> While greasy Joan doth *keel the pot."

In a "Midsummer Night's Dream," he also makes Titania, the fairy queen, say to her train—

> " Come, now a roundel, and a fairy song;
> Then, for the third part of a minute, hence ;
> Some, to kill cankers in the musk-rose beds ;
> Some, war with †rear-mice for their leathern wings ;
> To make my small elves coats ; and some, *keep back*
> *The clamorous owl, that nightly hoots*, and wonders
> At our quaint spirits."

Wordsworth, too, in his "Idiot Boy," alludes to this owl in March, when it hoots most, and tells a truth, as the sound comes from "nobody knows where"—

> " 'Tis eight o'clock—a clear March night—
> The moon is up, the sky is blue,
> *The owlet, in the moonlight air,*
> *Shouts, from nobody knows where ;*
> He lengthens out his lonely shout,
> *Hallo! halloo! a long halloo!*"

The too silent Gray, also, in his beautiful "Elegy on a Churchyard," says—

> " Now fades the glimmering landscape on the sight,
> And all the air a solemn stillness holds,
> Save where the beetle wheels his droning flight,
> And drowsy tinklings lull the distant folds.
>
> Save that, from yonder ivy-mantled tower,
> *The moping owl does to the moon complain*
> Of such as, wand'ring near her secret bower,
> Molest her ancient, solitary reign."

And Burns, too, amid the ruins of Lincluden Abbey, as already said, pays tribute to this owl—

> " As I stood by yon roofless tower,
> Where the wa'flower scents the dewy air,
> *The howlet mourns in her ivy bower,*
> *And tells the midnight moon her care.*"

**Keel* or scum the pot. †*Rear-mice*—Bats.

And poor, misplaced Henry Kirke White, who died delirious at twenty-one, in his "Ode to Midnight," also says—

"Meanwhile I tune, to some romantic lay,
My flageolet; and, as I pensive play,
The sweet notes echo o'er the mountain scene;
The traveller, late journeying o'er the moors,
Hears them aghast—*while the dull owl pours*
Her hollow screams each dreary pause between."

This *hoo-hoo-hoo*, Buffon says, "has a considerable resemblance to the cry of the wolf, which induced the Latins to give it the name of *Ulula*, from *Ululare*, to howl like a wolf." Besides *hooting*, it sometimes utters a harsh scream, which, along with its eerie *hoo-hoo-hoo*, when heard at night in some lonely spot, creates a weird, uneasy feeling—

"A fearful apprehension from the owl
Or death-watch,"

which deepened into superstition—not yet dead—and which Wordsworth notes in his poem of the "Waggoner"—

"*Yon screech owl*, says the sailor, turning
Back to his former cause of mourning—
Yon owl! pray God that all be well!
'Tis worse than any funeral bell;
As sure as I've the gift of sight,
We shall be *meeting ghosts to-night.*"

This owl sometimes screeches like the barn owl. I have heard the long-eared owl hooting in dense fir woods very like it (possibly this owl itself). But, when heard in some dimly-lighted wood, the far away *to-who, oo-oo*, of the owl, although eerie, is not unpleasing, at least to me, and is truly a "shout," as Wordsworth says, that "comes from nobody knows where." For, as Burns in his "Ode to the Owl," asks—

"Is beauty less, when down the glowing cheek
Sad, piteous tears, in native sorrows fall?
Less kind the heart when anguish bids it break?
Less happy he who lists to pity's call?

Ah, no, sad owl! nor is thy voice less sweet
That sadness tunes it, and that grief is there;
That spring's gay notes, unskill'd, thou can'st repeat,
That sorrow bids thee to the gloom repair.

From some old tower, thy melancholy dome,
While the grey walls, and desert solitudes
Return each note, responsive to the gloom,
Of ivied coverts and surrounding woods.

There, hooting, I will list more pleased to thee,
Than ever lover to the nightingale."

From some of my own trifling verses, I see I have felt a spark of the same pleasant feeling when listening to the owl—

> "I love the lonely, cone-clad wood,
> Where birds sing ever true ;
> Where none but Nature doth intrude,
> *To hear the owl's hoo-hoo* ;"

for, as already said,

> "The eerie hooting of the owl will please
> When heard within her lone retreat ;
> And even will the *soughing* of the trees,
> If heard in peace of mind, be sweet."

This owl has its scant nest in the holes of trees, amongst ivy, in an old carrion crow's or a magpie's nest, which, being covered, suits it ; sometimes in old buildings or rocks, like the barn owl, and lays four or five white eggs, larger and even rounder than those of the long-eared, short-eared, or barn owl's, being $1\frac{3}{4}{}^{16}$ by $1\frac{1}{2}{}^{16}$, against $1\frac{1}{2}{}^{16}$ by $1\frac{1}{4}{}^{16}$. They are hatched in April or early in May. The young are long in quitting the nest—perching near it, where they are fed by both of the old birds. But, as if to show that birds break all rules as to nesting, their eggs have been found in a rabbit's burrow. A gentleman, in a letter to the newspapers from Glenapp, Ayrshire, written March 20th, 1887, headed "A Hardy Bird," says :—

> "Last week, during the severe storm of snow and intense frost, I found in a wood here a nest of the tawny owl, and three eggs in it. It was in a disused rabbit hole. My attention was drawn to the spot by the bird suddenly coming out of the earth as it were. The snow was lying close up to the nest."

The Rev. Mr Bree, in the *Magazine of Natural History*, tells that "several young owls were taken from the nest and placed in a yew tree in his garden. The parent birds repeatedly brought them live fish, called bull heads *(cottus gobis)*, and loach *(cobites barbatala)*, got from the neighbouring brook, where these fish abound." He also found the same fish "lying under the trees where the young owls perched, after they had left the nest, and where the old birds fed them." Like most birds of prey, the young are darker than the old birds. They breed in the red plumage next spring. The adults become greyer with age—like Uncle Tom—the males greyest. I am not sure if they breed about St Andrews, as most of the old woods are cut down ;* and owls—like human crofters—and every other creatures, disappear when their homes and shelter are torn down—a fact well known to John Knox, who, when he wanted to get rid of Popery, shrieked, from a protesting pulpit (our own old Trinity, or three aisled Parish Church—since converted into the present ugly, but massive, Town Kirk in South Street, within which stands the marble monument of Archbishop Sharpe) "Pu' doon the doo-cot, and the doos will flee," as was done to our Metropolitan Cathedral and Castle, and made them the nesting-places of feathered screech-owls—aye, and hooting ones too!

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* A pair reared their young this year (1892) at Denbrae, two miles from St Andrews. The female was shot in June, and is now stuffed. Another was killed with a stone last year at Mountmelville.

In 1886 the following interesting account of "Three persons attacked by an Owl" appeared in the *Scotsman*:—

> "A farmer's son of Marhamchurch is lying in Stratton Hospital from severe injuries inflicted on him by an owl. A pair of owls had their nest in an elm tree, and, as they made raids on the farmer's chickens to supply food for their young, one of the farmer's sons climbed the tree, and took two of the young owls and kept them some days, feeding them by hand. He had one of the young ones in his hand showing it to a friend, when one of the old birds suddenly pounced upon him, and struck him heavily on the head. He dropped the young owl, and defended himself with a stick; but the owl renewed the attack, and wounded the boy in the eye so seriously that the sight has been destroyed. The father, who saw the attack, immediately killed the two young birds, whereon the parent owl attacked him and another son, inflicting wounds in the neck of both. The farmer then went for his gun, but the owl escaped."

A proof that this powerful owl's hooked beak, strong tarsi, and sharp talons were not given in vain. The Chief Constable of Roxburghshire wrote to the *Field* about the same time:—

> "A remarkable circumstance came under my notice a few days ago. When inspecting my men at Hawick, on June 17th, one of them showed a damaged face. On asking the cause, he said that when on duty that morning, on the road near Branxholm, he was attacked by an owl. Somewhat doubting, I pushed the inquiry, and learned that the same owl had attacked a number of people, whose names were given me, in the summer of 1885; and that during the present season its attacks have been repeated and persistent. The first attack on the constable was made about 10 P.M. on the 14th. When he passed the tree on which it was perched it gave a screech; and then, darting at him, struck him with its beak and claws on the back of the neck, cutting the skin. The second time it again gave warning; and, with the view of securing the bird, he turned round and walked backwards, but before he could defend himself the owl darted on him, struck him on the left cheek and under eyelid. After striking, it flew away and perched on a tree on the opposite side of the road from where it usually perched, and when the constable turned round, and was proceeding on his way, it darted on him again, striking him on the back of the neck. I have the names of a dozen people who were attacked in the same way, near the same place. But the most determined attack was made on the 18th—the night after the attack on the constable—on two men, who were walking on the road about eleven o'clock at night. One of the men was next to the tree on which the owl was sitting, which, without warning, darted on him, struck him on the head, and carried off his cap. It attacked him thrice in

succession without alighting. But this led to its destruction; for it was shot by a gamekeeper on the 20th. It turned out to be a common brown owl, its legs and feet closely feathered. A young owl was got near the same place."

Another strange incident of "An owl attacking a man" is recorded in *Forest and Stream*:—

"A teamster, taking in a load of baled hay from Brownville to the Jo Merry Lakes, stopped late in the afternoon to bait his horses under a big yellow birch; and, while his horses munched their oats, the teamster coiled himself on the top of his load, and pulled his blanket over him for a short nap. When he awoke it was nearly dusk. On quickly drawing his blanket from his face, it was instantly pierced deeply by sharp talons. This fierce onslaught was made by a large owl, which, on seeing his white face suddenly revealed, and, taking it for a rabbit or some such animal, had pounced with all its energy from the tree above. The man, frenzied with pain and terror, not knowing what had seized him, desperately grasped his enemy, and, clutching the legs (which turned out to be an owl's) with one hand, and its neck with the other, wrenched the head from its body. How he extricated the talons from his face, and made his way to the clearings and help, he hardly knew. By good fortune his eyes were not destroyed, but for a long time his swollen face prevented him from seeing, and I have often heard a description of his appearance during that period.—*C. H. James.*"

This untameable ferocity in owls is innate, and shows itself even when drunk. You'll have heard the expression, "as drunk as an owl"—not that this night-bird likes drink like a toper, for it is a rigid Good Templar; but an undoubted historical incident lately appeared in the press, of a favourite tame owl getting drunk through accidentally imbibing a tumblerful of whisky and water, with the result that the lady of the house was startled by a series of screeches and a kind of hoarse chuckling coming from a room. Entering, she found the owl excitedly fluttering its wings, and engaged in a wild pirouette, which he broke off to rush at her, and drove her from the place as soon as she entered. He became most furious and excited; he "went for" the furniture, with intervals of more dancing, till, finally, reeling idiotically about the room, chuckling, it lay.

On the 28th of August 1889, at half-past eight o'clock—twilight—I saw an owl and a bat jerking and wheeling at the harbour, outside of the old Abbey wall, near the two old dovecots in the east round turrets (where this owl and the barn owl once had their nests). It was so dusky that I could not make out the kind of owl—or whether it was chasing the bat for its prey, or the bat annoying the owl—likely the former; but I never noticed such an incident with these two silent nocturnal flyers before, so the flying mouse may be added to the owl's bill of fare, as well as the human face.

When Richard II. was superseded by Bolingbroke (afterwards King Henry IV.), he wretchedly compares his eclipsed royalty to that of the mounting lark by the nocturnal owl, thus—as this owl preys both by day and night—

K. Rich.—" What says King Bolingbroke? Will his Majesty
Give Richard leave to live till Richard die?
North.—My lord, in the base court he doth attend
To speak with you; may't please you to come down?
K. Rich.—Down, down, I come, like glistering phaeton
Wanting the manage of unruly jades;
In the base court! Base court, where Kings grow base,
To come at traitors' calls, and do them grace.
In the base court! Come down? Down court! down King!
For night-owls shriek, where mounting larks should sing?"

TENGMALM'S NIGHT OWL.

(Strix Funerea.) Linn. (Noctua Tengmalmi.) Mihi.

" The trees, though summer, yet forlorn and lean,
O'ercome with moss, and baleful mistletoe.
Here never shines the sun; here nothing breeds,
Unless the nightly owl or fatal raven."
—*Titus Andronicus.*

This little owl is about the size of the little-horned owl, for which it is often mistaken. It also resembles *Noctua passerina* (another rare species) in colour, but less spotted with white. The shorter tarsi and thickly feathered toes, however, distinguish it from both of these. Its tail is also comparatively longer—an inch beyond the tail, which is 4½ against 3 inches, and gives it a longer appearance. It is 10½ inches long; the female 11½ (the same size as the passerina). The head is unusually large, and both the disc (which is black) and ruff are complete. It breeds in the holes of trees, and lays two round white eggs. Its food—like the other small owls—is mice, moths, coleopterous insects, &c., and its plumage, like all the nocturnal owls, is soft and downy. It also hoots like the last. Amongst the few instances recorded of its being seen in Scotland is that of Professor Heddle, who wrote to the *Citizen* in January 1886, that he saw one here, close to the ruins of St Leonard's Chapel. He says:—

"I write to record a visit to St Andrews of one or other of the two rarest owls known in Britain—the *Strix Passerina* and the *Strix Tengmalmi.*

"Passing the west gable of St Leonard's Chapel at dusk, my notice was attracted to the perfectly noiseless flight of the owl, by the chattering of three birds which were teasing it. The owl settled on the laburnum near the chapel—its three tormentors disposing themselves within a few feet; and, though they assailed it with cries, they kept at a distance of about a yard. Though I got within seven feet of the bird, immediately beneath it, I was unable to ascertain to which of the above pigmy species it belonged—partly from want of light, and partly from its ruffling its breast feathers, in which it muffled its bill in a slumberous manner. I was thus unable to note the chequered colour of the breast, which is one of the best points of distinction between the species. Disturbed either by myself or by its assailants, the tiny *strigid* made off with the usual fluffy flight of its order to the tree before the Ladies' School. Upon the instant of its leaving the first tree it was chased and screamed at by the small birds, which seemed bent upon driving it away. These were a blackbird, a linnet, and—notwithstanding the season of the year—I think a starling. Referring to the 'Historia Naturalis Orcadensis,' I find that a specimen of the *Strix Tengmalmi* was shot by myself in Wales in 1857, placed in the Museum at Kirkwall. I know not that either species of owl has been seen in Scotland since. My reason for noticing the occurrence of this rare owl in a public print, and not in a scientific journal, is to educe further evidence of assaults upon *Raptores* and *Strigidæ*, by birds whose weapons of offence are comparatively feeble. Surely a little owl might be regarded as an inoffensive stranger during the day by a bird as nearly as big as itself—a blackbird; or did the 'sentinel stars' not keep a sufficiently sharp look-out in the night; and had the little marauder during the 'silent watches'—silent as themselves—been promiscuously gobbling up the better-halves of the mixed multitude which assailed him?—*M. Foster Heddle, St Leonard's, 28th Jan. 1886.*"

From what he says about the owl "ruffling its breast feathers in which it was muffling its bill in a slumberous manner," I think it was *Noctua Tengmalmi*, whose large head, short neck, and full, downy plumage would give it that appearance, and is one of its distinctive features. The doubt as to the starling being one of its three tormentors, because it was in January, may be cleared, as the starling is plentiful in St Andrews all the year through; and as regards the assaults made upon owls by smaller birds, we need not wonder at it, for a writer in the press says:—

"In Greece, for example, people look upon it as a solemn duty to stone every owl that comes in their way, and consider such an action as a meritorious kind of sport which everybody may indulge in. I happened myself to see a set of louts, students, in an Athenian seminary, engaged in killing a poor little owl by throwing stones at it. I told them it was a great shame; but the only answer I received was—'But don't you see it's an owl? don't you see it's an owl?' which seemed to be a conclusive argument for the death of the owl. In many parts of Northern Germany the shrew mouse is considered a fiendish creature, meriting death in a barbarous manner. The orthodox mode of killing it is by putting this poor little animal into a hole of a tree and plugging it up. The hedgehog, too, belongs to the class of innocently persecuted creatures. I myself, when a boy, have heard my older companions in the Westphalian Mountains maintain that the hedgehog must be *impaled alive*, wherever it be found. It is remarkable how tradition and fable survive. In the case of the owl at Athens alluded to, the present hatred may, perhaps, be explained as being the reverse of the ancient veneration. As is well known, the owl was formerly the chosen bird of the goddess Athene, and, as such, was considered holy. Possibly for this reason it may have been condemned after Christianity was established, just as German gods and legendary heroes were deemed fiendish beings by the monks, and continued during the belief in the witchcraft of the Middle Ages. Or, perchance, some holy man, engaged in some necessary duty, may have in the dark sat down on a hedgehog, and his curses have followed ever since."

But regarding the wholesale shooting of owls and other birds of prey in Scotland, as this is passing through the press, on May 7th, 1892, I see an interesting article in the *Saturday Review* upon the present plague of mice, which says :—

"It is probable that Nature will resent the disturbance of her balance, and possibly the destruction of owls may have given the mice the chance. If so, it is more than time to check the keepers, who, in some parts of Scotland, are shooting down everything—even the harmless and pleasant little water ousel. Nobody in his senses can place the interests of grouse against the interests of sheep, nor an English shooting tenant's amusements against Dandie Dinmont's livelihood."

Another letter in the *Glasgow Herald* of May 10th, 1892, regarding the "mice plague," says :—

"Some of your readers may ask—Where have the mice come from ? The gamekeepers could throw some light upon this. Part of their duty is to wage a war of extermination against all creatures likely to disturb or prey upon the young game on the estates of their masters. The consequence is that in protecting young partridges, pheasants, grouse, &c., they have protected field mice ; and as they are considerably more prolific than game, they are asserting themselves—just as numerically powerful combinations of miners and dock labourers and others do. It is a delicate and a critical matter to play fast and loose with Nature and her equilibrium of arrangements."—R. J. W.

THE LITTLE NIGHT OWL.

(*Strix Passerina*) *Linn.* (*Noctua Passerina*) *Mihi.*

"In weary being now I pine,
For a' the life of life is dead,
And Hope has left my aged ken,
On forward wing for ever fled."—*Burns.*

This owl is about the size of the jay, and is sometimes confounded with Tengmalm's night owl, which it resembles, but it is easily distinguished by its toes being covered with bristles like the barn owl's, instead of feathers, like the rest of the owls ; and its tarsi longer. If it were human it would be deemed religious, as it frequents church steeples, towers, and ruins, as well as the recesses of woods, on the Continent; but it is very rare, and does not breed in Britain. I might have stopped with the eight owls—four of which have horns, viz., the eagle owl, long-eared owl, short-eared, and little-eared owls; the other four being the snowy owl, the white or barn owl, the brown or tawny owl, and Tengmalm's owl; but as Professor Heddle was not certain whether the one he saw at St Leonard's was Tengmalm's owl or this one, I have included it here. Its general colour is brown, with a grey tinge, spotted with white; it lays three or four round white eggs, $1\frac{3}{8}$ by $1\frac{1}{8}$ inches, against $1\frac{1}{8}$ $^{1\,6}$ by $1^{1\,6}$ as in Tengmalm's. Having now given my description of the owls, I cannot do better than finish with "A nice letter from a Barn Owl," sent to the press by Mrs Jarvis, Bird Protection Society, Kirkliston, 1st March 1888:—

"Dear Young Friends,—As none of my relations have ever written to you, I shall begin by telling you who I am, and how I get my living. I am a member of the rapacious, or preying, or catching order of the feathered race. We are the winged hunters of the world, and we live on flesh, fowl, or fish; have powerful beaks, very strong legs and claws, keen sight and acute hearing. We hunt for our food, some by day and some by night. We are solitary birds, living in couples in lonely places. There is not one singer amongst us; but wherever our voices are heard, smaller birds and animals pop away into hiding-places: yet everybody knows that we are of great use in the world, although our manners are not very gentle.

"My cousins are the vultures, hawks, and eagles, and my family name is owl. There are many different kinds of owls in the world, and in this country there are eight kinds. Four of them have feathers sticking up on each side of their heads like horns, and on that account are called *horned owls.* The other four kinds are called *smooth-headed owls*—these are the snowy owl, the barn owl, the tawny owl, and the little owl. I am a barn owl, and one of the farmer's best friends. I am of more use in his stack-yard than a dozen cats, and he does not need to feed me. All I want is a dark corner in one of his barns or outhouses, where I can sit in peace and quietness during the day and enjoy my 'forty winks.' Some people who have only seen me in the day time when I am sleepy call me dull, stupid, moping; but if they saw me in the twilight and moonlight playing at hide-and-seek with the mice, rats, and beetles in the stackyard, they would change their opinion of me. I can easily catch forty mice in one night. My eyes, like those of the cat, are formed for seeing in the dark better than in the light, and they are placed much nearer together than the eyes of most birds, so that I can look straight before with both eyes the same as you do. I have a nice round face, which gives me an ancient, wise look when I turn my head. My coat is very thick and made of the softest down, so that when I fly I make no noise. If your eyes were shut and I flew close past your face you could not hear my flight.

"When I find a place where I can live undisturbed, I seldom leave it. And while sitting dozing all day I vomit up pellets. These are balls made of the fur, bones, teeth, feathers, &c., of the mice and other creatures which I swallowed whole while hunting during the night. Robins, blackbirds, hawks, and many other birds eject pellets made of what they cannot digest. Now, as the floor of my house is always strewn with pellets, I seldom trouble to make a pretty nest, but only put a few straws and twigs among them for my eggs to lie on. I lay two white eggs, and then wait nearly a month before I lay two more, and a month after then other two, so that I have twins three times, and the elder brothers and sisters help to look after the youngest baby owls. I cannot tell you how much their father and I love our little owls; all night we fly about looking for food for them, and about every ten minutes come to the nursery carrying a mouse, a beetle, or something nice for them to eat.

"Sometimes when children pass old ruins at night, where we live, when they hear us talking they think we are ghosts, and run away frightened; but you need never be afraid of your old friend,

"A Barn Owl."

Having now completed my stipulated "Order," the first division of the land birds—the *Raptorers* (or tearers)—I now begin to the second division, the *Incessores* (or perchers)—the most comprehensive order of the five, embracing the *Cantatores* (or songsters), the *Deglubitores* (or huskers), the *Vagatores* (or wanderers), the *Reptatores* (or creepers), the *Scansores* (or climbers), the *Excursores* (or snatchers), the *Volitatores* (or gliders), the *Jaculatores* (or darters), &c. But as it is difficult to define exactly what birds *do* or do *not* sing, husk, wander, creep, climb, snatch, glide, dart, &c., I think it better simply to describe each bird, and let my readers class them for themselves. In fact, they might all be classed as birds or flyers, in distinction to quadrupeds, reptiles, or fishes; and, even then, it were difficult to keep out the bat, the beetle, or the flying fish.

ORDER II.

Synoptical Table of the Incessores.

Order.	Tribe.	Family.	Sub-Family.	Genus.	British Specific Names.	Latin Specific Names.	Abbreviations.
2	1	1	...	1	Common Bee-Eater -	*Merops Apiaster* -	O.V.
...	...	...	...	2	Garrulous Roller -	*Coracias Garrula* -	O.V.
...	..	2	...	3	Chimney Swallow -	*Hirundo Rustica* -	P.V.
...	...	...	...	...	House Martin - -	,, *Urbica* -	P.V.
...	...	...	...	...	Sand Martin - -	,, *Riparia* -	P.V.
...	...	...	...	4	Common Swift -	*Cypselus Murarius* -	P.V.
...	...	3	...	5	European Goatsucker	*Caprimulgus Europæus*	P.V.
...	*	4	...	6	Common Kingfisher -	*Alcedo Ispida* - -	I.
...	2	1	...	7	Spotted Flycatcher -	*Muscicapa Grisola* -	P.V.
...	...	...	...	...	Pied Flycatcher -	,, *Luctuosa* -	O.V.
...	...	2	1	8	Great Cinereous Shrike	*Lanius Excubitor* -	O.V.
...	..	...	...	...	Redbacked Shrike -	,, *Collurio* -	O.V.
...	...	...	...	...	Woodchat Shrike -	,, *Rufus* - -	O.V.
...	...	3	1	9	Missel Thrush -	*Merula Viscivora* -	I.
...	...	...	...	...	Fieldfare - -	,, *Pilaris* -	P.V.
..	..	...	...	...	Song Thrush - -	,, *Musica* - -	I.
.	...	...	...	...	Redwing - -	,, *Iliaca* - -	P.V.
...	...	...	...	...	Blackkird - -	,, *Vulgaris* -	I.
...	...	...	...	...	Ring Ousel - -	,, *Torquata* -	P.V.
...	...	...	2	10	European Dipper -	*Cinclus Aquaticus* -	I.
...	...	...	...	...	Golden Oriole - -	*Oriolus Galbula* -	O.V.
...	...	4	1	11	Wheat-Ear - -	*Saxicola Œnanthe* -	P.V.
...	...	...	...	...	Whin-Chat - -	,, *Rubetra* -	P.V.
...	...	...	. .	...	Stone-Chat - -	,, *Rubicola* -	I.
...	...	...	...	12	Redbreast - -	*Erythaca Rubecula* -	I.
...	...	...	...	13	Common Redstart -	*Phœnicura Ruticilla* -	P.V.
...	...	..	...	...	Tethy's Redstart -	,, *Tithys* -	O.V.
...	...	...	...	...	Blue-Throated Redstart	,, *Suecica* -	O.V.
...	...	...	2	14	Grasshopper Warbler	*Salicaria Locustella* -	P.V.
...	...	...	...	...	Sedge Warbler - -	,, *Phragmitis* -	P.V.
...	...	...	...	...	Reed Wren - -	,, *Arundinacea*	P.V.
...	...	...	...	1	Common Nightingale	*Philomela Luscinia* -	P.V.
...	...	...	...	1	Black-Cap Warbler -	*Curruca Atricapilla* -	P.V.
...	...	...	...	...	Greater Pettychaps -	,, *Hortensis* -	P.V.
...	...	...	...	...	Whitethroat - -	,, *Cinerea* -	P.V.
...	...	...	...	...	Lesser Whitethroat -	,, *Garrula* -	P.V.
...	...	...	3	17	Dartford Warbler -	*Melizophilus Provincialis*	I.
...	...	...	...	18	Lesser Pettychaps -	*Sylvia Hippolais* -	P.V.
...	...	...	...	...	Wood Wren - -	,, *Sibilatrix* -	P.V.
...	...	...	...	...	Yellow Wren - -	,, *Trochilus* -	P.V.
...	...	...	...	19	Gold-Crested Regulus	*Regulus Auricapillus*	I.

* The true 4th, the *Trogonidæ*, is awanting, having no British species.

SYNOPTICAL TABLE OF THE INCESSORES—*Continued.*

Order.	Tribe.	Family.	Sub-Family.	Genus.	BRITISH SPECIFIC NAMES.	LATIN SPECIFIC NAMES.	Abbreviations.
...	...	...	4	20	Great Titmouse	*Parus Major*	I.
...	...	...	...	...	Blue Tit	*Parus Coeruleus*	I.
...	...	...	...	...	Marsh Tit	,, *Palustris*	I.
...	...	...	...	...	Cole Tit	,, *Ater*	I.
...	...	...	...	...	Long-Tailed Tit	,, *Caudatus*	I.
...	...	...	...	...	Crested Tit	,, *Cristatus*	I.
...	...	...	...	...	Bearded Tit	,, *Biarmicus*	I.
...	...	...	...	21	Hedge Accentor	*Accentor Modularis*	I.
...	...	...	...	...	Alpine Accentor	,, *Alpinus*	O.V.
...	...	...	5	22	Pied Wagtail	*Motacilla Alba*	I.
...	...	...	...	...	Grey Wagtail	,, *Boarula*	I.
...	...	...	...	...	Yellow Wagtail	,, *Flava*	P.V.
...	...	...	...	23	Rock, or Shore Pipit	*Anthus Aquaticus*	I.
...	...	...	...	...	Meadow Pipit	,, *Pratensis*	I.
...	...	...	...	...	Tree Pipit	,, *Arboreus*	P.V.
...	...	...	...	...	Richard's Pipit	,, *Richardi*	O.V.
...	...	5	...	24	Bohemian Waxwing	*Bombycilla Garrula*	O.V.
...	3	1	1	25	Skylark	*Alauda Arvensis*	I.
...	...	...	...	...	Wood-Lark	,, *Arborea*	I.
...	...	...	...	26	Snow Bunting	*Plectrophanes Nivalis*	P.V.
...	...	...	...	...	Lapland Snow Bunting	,, *Lapponica*	O.V.
...	...	...	...	27	Common Bunting	*Emberiza Millaria*	I.
...	...	...	...	...	Yellow Bunting	,, *Citrinella*	I.
...	...	...	...	...	Reed Bunting	,, *Schœniculus*	I.
...	...	...	...	...	Cirl Bunting	,, *Cirlus*	I.
...	...	...	...	...	Orlotan Bunting	,, *Hortulana*	O.V.
...	...	...	2	28	House Sparrow	*Passer Domesticus*	I.
...	...	...	...	...	Tree Sparrow	,, *Montanus*	I.
...	...	...	...	29	Chaffinch	*Fringilla Cœlebs*	I.
...	...	...	...	...	Mountain Finch	,, *Montifringilla*	P.V.
...	...	...	...	30	Siskin	*Carduelis Spinus*	P.V.
...	...	...	...	...	Goldfinch	,, *Elegans*	I.
...	...	...	3	31	Common Brown Linnet	*Linaria Cannabina*	I.
...	...	...	...	...	Mountain Linnet	,, *Montana*	I.
...	...	...	...	...	Lesser Redpole Linnet	,, *Minor*	I.
...	...	...	...	32	Hawfinch or Grosbeak	*Coccothraustes Vulgaris*	P.V.
...	...	...	...	...	Greenfinch, or Green Grosbeak	,, *Chloris*	I.
...	...	...	4	33	Common Crossbill	*Loxia Curvirostra*	O.V.
...	...	...	...	...	Parrot Crossbill	,, *Pytiopsittacus*	O.V.
...	...	...	...	34	Pine Bullfinch	*Pyrrhula Enucleator*	O.V.
...	...	...	...	...	Common Bullfinch	,, *Vulgaris**	I.
...	...	2	...	35	Common Starling	*Sturnus Vulgaris*	I.
...	...	...	...	36	Rose-Coloured Pastor	*Pastor Roseus*	O.V.
...	...	3	...	37	Raven	*Corvus Corax*	I.
...	...	...	...	...	Carrion Crow	,, *Corone*	I.
...	...	...	...	...	Hooded Crow	,, *Cornix*	I.

* Another lovely *vulgar* bird—in Latin.

SYNOPTICAL TABLE OF THE INCESSORES—*Continued.*

Order.	Tribe.	Family.	Sub-Family.	Genus.	BRITISH SPECIFIC NAMES.	LATIN SPECIFIC NAMES.	Abbreviations.
...	...	...	...	...	Rook – – –	*Corvus Frugilegus* –	I.
...	...	...	...	...	Jackdaw – – –	,, *Monedula* –	I.
...	...	...	...	38	Magpie – – –	*Pica Melanoleuca* –	I.
...	...	..	...	39	Common Jay – –	*Garrulus Glandarius*	I.
...	...	...	...	40	Cornish Chough –	*Fregilus Graculus* –	I.
...	...	...	...	41	Nutcracker – –	*Nucifraga Caryocatactes*	O.V.
..	...	2	...	42	Green Woodpecker –	*Picus Viridis* – –	I.
...	...	...	...	...	Great Black Woodpecker –	,, *Martius* – –	O.V.
...	...	...	...	...	Great Spotted Woodpecker	,, *Major* – –	I.
...	...	..	...	...	Lesser Spotted Woodpecker	,, *Minor* – –	I.
...	...	..	...	43	Wryneck – – –	*Yunx Torquilla* –	P.V.
...	...	3	...	44	Nuthatch – – –	*Sitta Europea* – –	I.
...	...	...	...	45	Common Creeper –	*Certhia Familiaris* –	I.
...	...	...	...	46	Common Wren – –	*Troglodytes Europæus*	I.
...	...	...	...	47	Common Hoopoe –	*Upupa Epops* – –	O.V.
...	...	4	...	48	Cuckoo – – –	*Cuculus Canorus* –	P.V.

ORDER II.

The incessores or perchers in this classification comprehend all the birds distinguished by Linnæus and other early orinthologists under the orders *picæ* and *passeres;* and form the typical order of all birds, taken as a whole—in their lightness of wing, sprightliness, power of song, ingenuity in construction of nest, interesting habits, greater brain development, and those endless attractions which make our feathered friends so interesting to man. But the division of this order into two separate ones was too rigid and artificial, and not justified by the internal or external construction of the species so classed; hence was rejected by modern systematisers, with the great French naturalist, Cuvier, at their head, who saw no reason for such an absolute division, either in structure, habits, or anything else—these leading authorities showing that an unbroken chain of affinity runs through the whole of these birds, which chain may be said to run more or less through all birds. They, however, separated this order into five tribes or divisions, under the names of *Fissirostres*, *Dentirostres*, *Conirostres*, *Scansores*, and *Tenuirostres*—jaw-breaking terms no doubt many of my young readers may think, and wish that Latin and all such mystifying technicalities could be left out of our scientific works altogether. Of these, the *Dentirostres* and *Conirostres* are the more typical tribes, being more perfect in construction, and having qualities—for certain purposes, superior to the others. Like the more typical falcons in the *Raptores*, I have placed these in the centre, beginning and finishing with the *less* typical. In an order of such extent, which contains such a variety of form, difficulty has been found by systematisers in defining their various groups and divisions. Some have selected their species from the *absence* of certain distinctive features which others had; others have pointed out certain distinct characteristics—notably Swainson, who has given three such distinct marks—two of which are universal, the third applicable to the more typical groups. The "first is, feet of that construction most adapted for perching or grasping, the hind toe always present, and articulated on the same plane with the fore toes; second, the absence of the strongly-defined tooth which gives the rapacious birds the exclusive power of tearing their food before swallowing it; thirdly, by the presence (in the typical groups) of a small notch on one or both mandibles, enabling the bird to hold, but not to divide its food, which is swallowed whole." So, from such marks any naturalist can collect, study, divide, make groups, tribes, and families for himself, and much pleasure he will find in the interesting occupation.

TRIBE I.

FISSIROSTRES. *Cuvier.*

The birds which constitute this tribe are distinguished from the more typical by their shortness of legs and toes, length of wing, width of gape (the bill being always broad at the base), and their habit of feeding upon wing. This habit, however, as well as their weak structure of legs, is also met with in the typical families of the Tenuirostres—the tribe which meets this one at the other end of the order; but their mode of feeding distinguishes them, the Fissirostres using their bill alone, while the typical Tenuirostral birds use their tongue. Their food is also different, the one tribe feeding chiefly on insects, the other on vegetable juices and fruits. The families which compose the Fissirostres are (usually five) distinguished by the *very* simple scientific names of the *Meropidæ*, *Hirundinidæ*, *Caprimulgidæ*, *Trogonidæ*, and *Halcyonidæ*. Of these, the *Hirundinidæ* and *Caprimulgidæ* are the typical groups.

FAMILY I.

Meropidæ.

The members of this family are chiefly natives of warm climates, and are noted for their beauty of plumage, comprising all shades of green, blue, yellow, and rich brown. They have full development of wings and tail, and are birds of active and powerful flight, obtaining all their food on the wing. Those which feed during twilight and night have the wings shorter and rounded. Of this family, only two have been found as O.V. in Britain, and none, to my knowledge, near St Andrews. These two are the bee-eater and the garrulous roller.

THE COMMON BEE-EATER.

(*Merops Apiaster.*) *Linn.*

> "And therefore as a stranger give it welcome."—*Hamlet.*

As its name implies, this bird lives chiefly on bees, which it captures on the wing like the swift or the swallow. Its bright yellow throat, long black bill, and gaudy feathers proclaim it a stranger, not only to St Andrews, but to Britain. Were it not for its long bill one would wonder (from its very diminutive legs and feet) how it could penetrate so far into the bank of a river, to lay its five or seven round white eggs. It is 11 inches long to the end of tail. The general colour is greenish blue, yellow and brown; the iris red. It abounds in the south of Russia, and in autumn, in large flocks, departs for more southern latitudes, steering clear of old St Andrews; so I need not follow it further, but speak of the other rare visitor.

THE GARRULOUS ROLLER.

(*Coracias Garrula.*) *Linn.*

"For both of you are birds of self-same feather."—*Henry VI.*

The rollers are wild, unsociable birds, and prefer to live in the gloom of dense forests. Like the bee-eater, their brilliancy of plumage denotes them to be strangers to the temperate clime of Britain, but are plentiful in the forests of Germany, and any rare stragglers may come just to have a peep at the great little island whose reigning dynasty claims kindred to the Anglo-Saxon German race. This one (the only species found in Britain) builds in the holes of trees, and lays from four to seven pure bluish white eggs, very like those of the bee-eater and king-fisher in their roundness and glossy appearance. If holes in trees be scarce, it also makes its nest by digging into a bank, and feeds on insects, snails, millepedes, and fruit. It is larger than the last, being 13 inches to end of tail. Its eggs are very round—1¼ by about 1⅛. I only wish I had seen our gaudy German friend on the Links of St Andrews, to have given me a *bona-fide* excuse for placing it here. Next in this arrangement come the swallows, as

FAMILY II.

Hirundinidæ.

The wings of this group being long, narrow, and acuminate, and the tail generally forked, indicate swift and prolonged flight. The legs and feet—quite in accordance with their little use in walking, are always short and weak, but the toes have sharp, hooked claws, which in some genera are very strong, enabling them to adhere to perpendicular rocks, buildings, and trees, where they roost and breed. They are spread over the globe, and are met with in almost all climates at certain times of the year. To enable them to catch their insect food, although their bill is short, their gape is wide, extending as far back as the eyes—Nature in this, as in everything else, being perfect in making all her creatures to fulfil the object required of them. Their food consists entirely of winged insects, which they seize and swallow with great dexterity during their flight, which is very rapid and buoyant, and sustained for a long time without fatigue. The nests of many of the true swallows are peculiar, being coated outside with clay or mud, mixed with pieces of straw, dried grass, &c., which grows hard and compact, while the inside is abundantly lined with feathers and other soft materials. Being summer visitors, they are later in breeding than our indigenous birds, which, as a rule, begin to breed with the bursting of the buds in Spring, while our summer migrants, the swallows, breed in May and June, and again in September. Their activity, elegance of flight, and attachment to human dwellings make them universal favourites—especially as it is only in summer, when Nature is in her most cheerful mood, when the very air is teeming with insect life, that they can exist, and must leave us on the approach of surly winter. The swallows moult in February in the warmer regions of Africa and Asia, and come to us in their renewed plumage. This fact has been proved by birds which have been kept eight and nine years in captivity. Three species of these cheerful harbingers of Summer frequent and flit about the scaurs and grey ruins of St Andrews, as well as almost every town, village, and farm steading in Scotland. These are the well-known red-fronted or chimney swallow, the white-rumped or window swallow, and the sand martin ; and so abundant were they in former years with us that the space where they flitted and skimmed above the rocky scaurs, from the old castle to the Martyrs' monument, was called "Swallow Gate" or Swallow Street, from which some authors say that at one period St Andrews had a long street called after the swallows—now erroneously called the "Scores," facing the sea, before the view was spoilt by Provost Playfair and others allowing houses to be built on the top of the scaurs (or cliffs) when they had the option of buying the park at a low price. There could be no place better suited for these cheerful summer visitors than between the Kirkhill, on the east, by the old castle and the scaurs, to the Witch-Lake Brae on the west, especially for the sand martins forming their nests on the face of the brae at "Dennis Work," near the Cathedral, and in the face of the Witch-Lake Brae, near the Step Rock.

There are none of the manifold pleasures of life we would more reluctantly part with than the annual visit of our cheerful feathered friends the swallows. They spend the half of their perpetual summer with us in skimming around our paths and dwellings, and if we seek pleasure on the sands or links, the fields, or the rocky braes of Kinkell, or along the banks of our burns, that pleasure is enhanced by meeting them at every turn. If the day be bright and sunny they will be seen flitting away almost beyond the reach of vision, like good ærial spirits, inviting ours to follow them, or should the weather be dull, and the genial sun hiding his face from us, and we stray forth with spirits depressed, we shall find them skimming near the earth and flitting around us—at one moment rapidly crossing our path, the next coming cheerfully to meet us, for they always fly high or low according to the state of the air most suitable for insect life. If you are fond of trout-fishing, and wander along the flower-spangled banks of the river Eden or Kenly Burn in patient search of your finny prey, they, too, will be with you in search of their's the whole day long, coursing up and down the stream, bearing you company, ever and anon dipping their pointed wings or tiny bill and snatching a fly as they pass. But besides the fields and the rivers, the meadows and the downs, we find them from morning to night skimming along our very streets—not like Jacques with a sluggish, melancholy air, but with an elegant activity and buoyancy which tend irresistibly and unconsciously to attract and raise our spirits as they fly. Even at her spinning-wheel, Burns makes Jenny say :—

"The swallow jinkin' round my shiel,
Amuse me at my spinning-wheel ;"

and makes Philly declare that—

"The little swallow's wanton wing,
Though wafting o'er the flowery Spring,
Did ne'er to me sic tidings bring,
As meeting o' my Willie.'

They glide through the air with the utmost ease, in continuous sweeps, without the undulatory motion of most other small birds.

Even Banquo, in his mistaken praise of Macbeth's Castle in Inverness (where King Duncan was murdered), says of the cheerful window swallow :—

"This guest of Summer,
The temple-haunting martlet, does approve
By his lov'd mansionry, that the heaven's breath
Smells wooingly here : no jutty, frieze,
Buttress, nor coigne of vantage,* but this bird
Hath made his pendent bed and procreant cradle,
Where they most breed and haunt."

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* Coigne of vantage, a corner suitable.

There are few so indifferent as not to hail them with pleasure on their return after a long and gloomy winter, and the joyous expression, "I have seen the swallows for the first time this year" is felt, if not spoken, by all, for the arrival of the first swallow is hailed as the true harbinger of Summer, bringing with it a thousand anticipations of sunny skies and cheerful rambles in the open fields, and of pic-nics spent by the sea-shore, on Kinkell braes, or the green woods; for on its approach the trees have begun to assume their livery of green, the meadows to be strewn with flowers; the bee, the butterfly, and even the very beetle have left their winter's sleep, and flit by on happy wing. I never see these dear birds gathering together on some high church rigging or telegraphic wire on the approach of winter than I feel as depressed at their leaving as I felt enlivened on their coming; and as we see the last lingering few, which October has induced to tarry behind the rest, we cannot help feeling regret that they, too, are going to leave us; that we are about to lose those little feathered friends who have been the unconscious companions of our solitary rambles through a Summer of our life that will never again return; and all we can do is silently to wish them God-speed in their long distant flight to a sunnier clime! Would that the soul of man could fly away and return the same! Alas!

"The voice of Spring it will again return,
But never more the ashes of the urn."

But, as Burns says—

"The trees now naked groaning
Shall soon wi' leaves be hinging;
The birdies dowie moaning
Shall a' be blithely singing,
And every flower be springing."

For

"Again the merry month o May
Has made our hills and valleys gay,
The birds rejoice in leafy bowers
While bees hum round the breathing flowers."

THE RED-FRONTED (OR CHIMNEY) SWALLOW.

(Hirundo Rustica.) Linn.

"The little birdies blithely sing,
Or lightly flit on wanton wing
In the Birks of Aberfeldy."—*Burns.*

This cheery summer visitor generally arrives about St Andrews in the end of April; I have seen it on the 16th. It has been seen as early as the middle of March, in mild seasons; for birds, like the buds and flowers of Spring, are regulated by the mildness or severity of Mother Nature, and come sooner or later at her bidding. Sometimes she calls them too early, like the buds and blossoms on fruit trees, to their destruction. Between May the 10th to the 15th, in 1886, a great number of swallows were destroyed by the severe storm and low temperature of that week. They were found lying dead in great numbers, killed by cold and hunger. The newspapers were full of this unkindness of the season. The *Glasgow Herald* said :—

> "The storm and the low temperature of the past week has proved fatal to a large number of swallows in the Annan district, the birds found having evidently been killed by cold and hunger."

No doubt their insect food had perished also. The *Scotsman* said :—

> "EXTRAORDINARY DESTRUCTION OF SWALLOWS.—A very remarkable effect of the recent gale is the wholesale destruction of swallows in the Northern Counties of England. In Cumberland and Westmoreland the destruction was great. On the gravel at Basanthwaite Station 200 swallows and sand martins were picked up dead ; and at Appleby and Windermere and other places in the Lake district, swallows have been found dead in scores."

The storm and cold not being so severe with us, no such destruction of our lively summer visitors took place near St Andrews. But on October 1st, 1889, Mr Thomas Nicol, Balgonie, Markinch, in *Rod and Gun*, said :—

> "Few swallows visited Fifeshire this season. A few pairs came as usual at first, fluttered about for a few days, but were seen no more. And now has come the time when the departure of swallows should be noted ; but not one is to be seen in this quarter. How can this be accounted for? After the birds arrived the weather was wet, cold, and uncongenial : insects were not to be got, and the birds perished. Their old haunts under cottage eaves are empty, and their absence is much deplored. Bats are equally scarce ; being also insectivorous. Wasps have been fewer, but scape bees have made heavy stores. Wild bees have been rarely seen. Midges used to be perplexingly plentiful, so that veils have had to be worn by people walking along the roads in September. Now these pests are rare ; and not a chirp from grasshoppers heard this season."

From this we see that Nature balances her own exuberance of life without the need of so-called keepers of game, and sometimes destroys both cure and disease, insect and swallow, grouse and hawk, blossom and fruit, mouse and man, in her own universal balance of all, quite independent of unjust game laws, for, as Burns truly says—

"The best-laid schemes o' mice and men
Gang aft a-gley,
And leave us nought but grief and pain
For promised joy."

Miss Ormerod, in the *Cheshire Agriculturist*, respecting the general and severe attack on grain crops by myriads of insects —so great that the deficiency was estimated at 33 per cent.—in 1888, says :—

> "The insects on the wheat are plant-lice or aphides. They do mischief in all stages by drawing away the sap with their suckers, and also by the great number of holes that these suckers make. In their young state, these grain plant lice most especially attack the upper part of the blade, which accounts for the discolouration produced. As the plant hardens they take what is soft enough for them to live upon. I see them of all ages on the wheat ears you sent me. It is specially with regard to attacks of this sort that it is so important not to allow the martins and the swallows to be driven away, as is so much the case in some districts, by the sparrows. The martins and swallows clear myriads of insects constantly, and if they are allowed to be driven away we shall suffer woefully."

Like all the swallows, the legs and feet of this beautiful species are very short, the tarsus being shorter than the hind toe with its claw, plainly indicating that Nature never intended it to "dwell upon the earth," while its slender, elegant form, extreme length of wings, and long forked tail, as plainly tells that skimming through the air was its mission, as Burns said the farmer's auld mare Maggie's was to run, for

"When she was corn't and he was mellow,
They took the road aye like a swallow."

The plumage is very soft, richly blended, and highly glossed. The forehead and throat are deep chestnut red ; all the upper plumage is glossy steel blue, changing to purple. The lower parts are reddish white, from a yellowish tinge to a beautiful pale red ; the quills and tail greenish black. The tail feathers have a large spot of white on the inner web, which is seen when the birds are flying. The outer feathers of the tail are very long in the old birds, making it deeply forked. The side feathers are narrow and long, exceeding the middle ones by 1½ inches, sometimes by more than 3 inches. The bill is black, the iris light brown. There is little difference between the male and female; the male is only brighter in colour and has the tail longer. It is about 8¾ long and 14 inches in extent of wings. Swallows fly high or low, according to their insect food; in fine weather generally high, in rain or cold winds, when insects keep low and seek the shelter of walls and trees, swallows do the same, and may be seen skimming close to the surface, shooting rapidly past—even in the streets and walks around us. The red-fronted swallow in summer, like the red-breasted robin in winter, seeks the vicinity of man, and will be seen skimming around every town, village, and farm steading; and although not song birds, the male warbles a sweet low twitter. Its food consists of insects caught on the wing. It does not swallow each at once, for when one is shot on the wing a lot of flies will be found adhering to a gummy saliva around its mouth, which I have seen. For a time the old birds feed the young on the wing. When some insects have been caught, the old bird with low cheeps calls the young one; the two rise a little, and poise themselves until the transfer is made, then away they flit on their tireless avocations. Although swallows probably have received their name from the old notion of their flying with open mouth, and swallowing their prey, it would be needless, besides tiresome, for their sight is so acute that in the midst of their rapid flight they will abruptly deviate several feet, and even yards, to secure an insect, then away again. Over a pond or pool you may see a lot of swallows collected in a quiet evening, and when flies are abundant they skim more leisurely and sweep in smaller curves, so that their motions and habits can be easily studied. Every now and then you may see one flutter over the water and pick up a fly from the surface, as they do above manure heaps; indeed, their mission being to catch flies—like money-grubs, gold—they do so on every occasion and wherever they can. They begin before sunrise, and continue their avocation with little interruption till dusk. The red-fronted and window swallows arrive here about the middle of April, but do not begin to make their nest till the end of May. They are in no hurry, sometimes taking a month to complete it; but if it should fall they can build a new one in a week. The sand martin usually comes before this species, but this year, 1892, they were a few days behind. According to my own observations, its name of "chimney swallow" is a misnomer, for I have never seen its nest in a chimney. It generally builds under the eaves of sheds and outhouses, or on beams and rafters, but open at the top. They sometimes build in window corners, like the house martin, but, while the eave forms the top, an opening is left for the birds to go in and out, and if placed on a beam, the beam forms the bottom ; they sometimes stick their nests against a door or a gate which is hinged, and on the top of a bough overhanging a pond or stream, but usually in sheds and outhouses. I have often got their nests with eggs and young on the horizontal rafters of old thrashing-mills near the city, although the whirl and dirl of the mill went on, and the horses walked round with them in their endless wheel. On the 6th of August 1878, when down at Mr Gibson's sawmill for wood, I saw the old birds feeding their ripe young ones. The nest rested on a fillet three inches broad, only eight feet from the floor. The half of the young were in the nest, the rest on the fillet, not the least afraid, neither old nor young. When the mother got a fly she flew past me and fed them—all the time the whirring of the machinery and bustle of the mill going on. Afterwards, when this mill was burned, where I often saw both eggs and young, the glare of the burning reminded me of Southey's picture of a fire at night—

> "From their clay-built nests,
> Now first disturbed, the affrighted martin flies,
> And, uttering notes of terror short and shrill,
> Amid the yellow glare and lurid smoke,
> Wheeled giddily."

On the 5th June 1855, while waiting for the six o'clock morning train in the old wooden station at the Links, on my way to Tentsmuir, I saw them building on the cross rafters, and on the 14th I got a nest with two eggs in a shed at the farm-yard of St Nicholas. There were other nests not finished. On the 16th I went down to the railway station (where I saw them building on the 5th), and, after repeated attempts, clambered up one of the posts and got the nest with four eggs in it, which proves the time they build and lay here. They lay four or five oblong eggs, speckled over with small dark red spots—easily known from all other eggs (like the Egyptians). The outer crust of the nest is composed of mud or clay, with bits of straw and some hairs to bind it together, amply lined with fine grass or wool, and almost filled with feathers, but, like all birds, the materials vary. They have generally two broods in the year—the first fly in July, the second in the end of August ; and leave us about the first of October. I saw some as late as the middle of November in 1887. The first brood often nestle at night along with the second brood and the old birds, or as many as the nest will hold. On the 12th of October 1889, in noticing "a pair of belated swallows," the press said :—

> "In Millport a pair of swallows are presently engaged in rearing a brood of five young ones. When the rest of the swallows had taken their departure, this pair were busily engaged in building a second nest in a corner of one of the windows of the Cumbrae Hotel. Great interest is being taken in them, as it is such an unusual occurrence to see swallows nestling at this late season."

They would likely be the window swallows, but it only shows the deviations of Nature. No doubt these late birds would instinctively find their way over the ocean to their summer homes as well as the rest. They rear their young with us, and renew their plumage by moulting abroad. From experiments in confinement, swallows do not moult like other birds on the approach of winter, but in February, before they revisit their summer haunts. They leave us with their plumage worn about the time other birds renew their's. They have been tested to live without food for a week, which may suit them for their long flight across the sea. Previous to their departure in October, they congregate on high roofs, such as kirks, and on telegraph wires, which is taken advantage of by man ; at least a paragraph headed "Slaughter of Swallows" lately appeared in the *Daily Telegraph* :—

> "PARIS.—A slaughter of swallows has been organised on a large scale along the seaboard of France. The poor creatures alight on wires (prepared for the purpose), tired out after long flights to or from Italy and the East, and are killed in thousands by means of electric currents. This modern massacre of the innocents has been ordained in the interest of fashion, and the slaughtered birds are sold for the decoration of ladies' (?) hats and bonnets in London, Paris, and New York."

Thus we see, if ladies' whims and love of gain in man had their sway, and could convert all the swallows into gold, we would have plagues of flies as well as plagues of mice. How very different from Burns' feeling to the swallow, as seen in his lines to "Peggy" :—

> "But, Peggy dear, the evening's clear,
> *Thick flies the skimming swallow ;*
> The sky is blue, the fields in view,
> All fading green and yellow;
> Come, let us stray our gladsome way,
> And view the charms of Nature—
> The rustling corn, the fruited thorn,
> *And every happy creature.*"

The young birds are easily known by the shortness of their lateral tail feathers or rudder. Yet they find their way across the sea without a compass or a chart to their new and unknown home as readily as their parents, and, like the needle to the pole, or the votaries of every creed, instinctively seek and find *their* future home more truly than the souls of zealous but uncharitable and differing churchmen as instinctively seek theirs, for when I watched them—

The young anes seemed to ken as weel
That they frae winter dour maun steal,
And Nature's law instinctive feel
    The reason why,
And owre the lift unerring spiel,
    And cleave the sky.

They lichted on a kirk close by,
As if, like man, they, too, would try
To reach *their* heaven through the sky—
    But no' wi' prayer;
And frae its high, steep roof to fly
    And cleave the air.

Without a compass, ship, or guide,
They steer through ether, far and wide,
Nor learn frae books, nor time, nor tide—
    Mair true than man—
An erring fool ! for a' his pride
    And churches' ban !

There is an old Scandinavian tradition that the swallow hovered over the Cross of Christ twittering "Svala, svala"—meaning "console, console"—hence it is called "the bird of consolation." A Roman superstition makes it a sign of luck for the swallow to build about one's house, and that it was sacred to the household gods. To injure it was to bring down wrath upon your house, which lovable legends are, however, disregarded along the French coast, and by all ladies who encourage such a cruel destruction of our most useful swallows. Surely *they* cannot be blamed for living on game; and such wholesale death by electricity is both an unchristian and a barbarous trade (taking advantage of tired creatures' habits of resting on telegraphic wires) to please a callous whim of fashion—no great passport for woman's influence and power in Parliament!

This species is the first to give the alarm when a hawk is seen —its rapid flight and quick evolutions making it callous to fear. It is also the only songster amongst our swallows, the others being almost mute. Virgil says—

"As the black swallow near the palace plies
O'er empty courts, and under arches flies;
Now hawks aloft, now skims along the flood,
To furnish her *loquacious* nests with food."
—*Dryden's Virgil.*

THE WHITE-RUMPED WINDOW SWALLOW.

(*Hirundo Urbica.*) *Linn.*

> "True hope is swift, and flies with swallow's wings,
> Kings it makes gods, and meaner creatures Kings."
> —*Richard III.*

The window swallow, sometimes called the house martin, arrives about the same time as the last. It frequents the same localities; and although less in size, resembles it, but is easily distinguished by the white patch on the rump. It is fuller formed, has the wings and tail shorter, and the tail less deeply forked, hence its flight is not so rapid, nor has so many sudden evolutions. The upper part of the head and neck, half of the back, scapulars, and some of the wing coverts are glossy steel blue; the wings, tail, and tail coverts chocolate brown, slightly glossed with green. There is little difference between the male and female; length to end of tail 6 inches, and 12 inches in extent of wings. They are more numerous than the last, and also arrive in full plumage, and depart before moulting. The bill is black, mouth yellow, iris brown. Although the legs and feet are also very small and feathered, they can alight on a wire, kirk roof, or branch of a tree, and (unlike the swift) can rise from the ground with ease. I have seen them alight upon trees 20 feet high; but although they can walk on the ground, they do so in an awkward manner, owing to their short legs.

They build about the end of May, and take from six to ten days. They begin at the bottom and build upwards. After rain, they alight at the side of a pool or on the road (I have seen them at the side of the gutter), dab a portion of the damp mud on their bill, fly to the nest, and apply it to the outer crust. The various pellets are discernible when finished. The outer shell is ½ inch thick, held together by short straws or fragments of grass, ingeniously mingled, and held together by their viscid saliva. It is from 6 to 8 inches in diameter. It is lined with a layer of wool, hair, fine dried grass or pieces of straw, and a thick bed of feathers, mixed with hair, wool, bits of linen or tape. In building the crust, one of the birds alights on the rim, with its tail against the wall, and by wriggling its head and bill rapidly, plants the pellets in their place. The usual sites are the upper corner of windows or under the eaves of houses, sometimes on the sheltered face of a rock. In Norway there is an island rock called Forghattan, with a high tunnel through it, on passing through which hundreds of their nests are seen plastered against the rough roof. Many build on the perpendicular cliffs of St Abb's Head, and I have seen hundreds of nests, both of white-rumps and red-fronts, in rows, on the face of the cliffs between Auchmithie and the Red-Head in Forfarshire, about 100 feet up (as high as the square tower), undiscernible except for the swallows popping in and out. I have also seen them stuck on the Scaurs at the Witch Lake. When in the corner of a window the opening is always on the sheltered side, looking inwards. The eggs are pure white, oval, about $\frac{3}{4}$ of an inch long; four or five, sometimes six in number. In breeding and during incubation both birds often sit in the nest, and always repose together at night. When nearly fledged, the young come to the edge of the opening to be fed, and when able to fly it is amusing to see the wiles the old birds use to induce them to quit the nest to teach them to fly—often pushing or dragging them out by their bill when clamouring for food, while the old ones cling outside by their claws (a wise lesson for too many human parents!) Touching this, Wordsworth—true to Nature, says:—

> "The swallow, at the hour of rest,
> Peeps often ere she darts into her nest;"

for, even when there are only eggs, they will cling lovingly to the nest, peep in and dart away again with a happy twitter, as if to say they are all right; one more flight. For some days after leaving the nest they fly about, with their parents teaching them, and are fed on the wing, returning to the nest at night, and nestling with the old ones. The first brood fly about the end of June, the second at the end of August or in September; but the time, like everything else in Nature, varies. In passing the old College Steeple in North Street as late as half-past nine o'clock at night, on the 11th of June 1855, I noted both the old birds sitting in their half-built nest in a corner of one of the janitor's windows; for the building of birds' nests, like the budding of trees, depends upon the season. I have seen the rooks, like the pear-tree buds, halt, from the 1st of March till the 1st of a blustering, snow-clad April—a whole month—owing to a sudden change of weather. So the swallows: a slight layer of ice on the pond, where they get their clay or mud, on a surly May morning, will delay them for the day. I have watched them begin to build on the 1st of May, and have their nest finished on the 19th; some on the 3rd of June, and finished on the 17th. Others, whose nests have been knocked down by wet or accident, have rebuilt them in less than a week. At night on the 18th of July, a storm of wind and rain knocked down part of a nest stuck in the corner of a window, and one of the eggs, nearly hatched, fell down. At first the old birds fluttered anxiously about with plaintive cries; but next morning early they began to repair the damage, although it rained heavily. One remained in the nest while the other brought the materials; part of the original lining hanging over the side was built into the new fabric. In a few days it was finished, and the young ones hatched. Another wise lesson for humanity—not to despair, but begin at once to rebuild their house or fortune if they fall.

The only little birds not afraid of the sparrow-hawk are the swallows. They mob and chase it, their quick movements annoy it, and it gets out of their way as fast as possible. As Tennyson says:—

> "Above, on the wind was the swallow,
> Chasing itself at its own wild will." *

And, if the hawk comes near their nest they attack it. The regularity of their return to old haunts is remarkable. A gentleman named Falconer, of Carlowrie, and his gardener watched their arrival for forty years, and they regularly alighted on his premises either on the 22nd or 23rd of April. On the forenoon of the 23rd of one April he asked the gardener if he had seen his feathered friends yet? They had not yet come, but about four o'clock P.M. the gardener hurried to him with the joyful news that they had just arrived, and were sitting on the ridge of the stable roof. And as proof that they not only revisit the same places, but occupy the same nests, a gentleman in Kent selected a detached nest, got the old bird sitting on eggs, and fastened a small piece of silk round one of its legs. Next year the bird returned to the same nest, identified by the piece of silk. Others have been identified by small silver rings round their legs. But it should be borne in mind that our summer migrants in coming back to us are not only returning to the homes of their youth, where they were hatched, but have come at the call of Nature to carry on the simple but inexorable law of reproduction. Our winter migrants, on the other hand, are more like sojourners in a strange land—like a

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* This applies more to the last species, or to the swift.

wind-bound vessel seeking shelter during the storms of winter—and are glad to take the first chance of Spring to leave us for *their* native homes to carry on the same law—so instinctively implanted in all creatures for the perpetual continuation of their kind. They begin to build about a month after their arrival. In 1889 I saw them first on the 4th of May, and at half-past nine at night on the 4th of June, when I was working at the upper harbour, the tide ebb, half a dozen alighted beside me and dug at the clay with their bills, and flew off with the pellets round it. Swallows are not so abundant about St Andrews as they use to be; perhaps the extreme sanitary laws and fastidious cleanliness in tearing down the nests from window corners may have something to do with it. Possibly the drainage of swampy ground and the smaller lochs may lessen the number of swallows, by lessening their supply of food—as Nature always balances her supply and demand.

In Germany and Sweden it is different, for dozens of their nests are seen crowded together under every low-roofed cottage. Mr Wolley, writing from Swedish Lapland, says:—"The house-martin is very abundant here. Round the court-yard of a peasant's house I counted 160 nests still remaining, although all those upon one side had lately fallen down. It is a general favourite, and the people everywhere nail up narrow boards upon the walls to support the nests. There are often three or four rows, one above the other, just room for the nests between the boards," bearing out Shakespeare's simile, in the choice of Portia's casquet—

"Like the fool multitude, that choose by show,
Not learning more than the fond eye doth teach;
Which pries not to the anterior, but, *like the martlet,*
Builds in the weather on the outward wall."

Unlike his cutting allusion to the flight of Cleopatra's navy:—

"The brize upon her, like a cow in June,
Hoists sail and flies."

While

"The noble ruin of her magic, Antony,
Claps on his sea-wing, and like a doting mallard,
Leaving the fight in height, flies after her."

But it were a pity if in Britain, the home of every wanderer, anything were done to lessen the numbers of this joyous and welcome harbinger of Summer. For

"A day in April never came so sweet
To show how costly Summer was at hand,
As these fore-flyers come before their lord."

—the swallow being the harbinger of summer, as the owl is the herald of the night; for, as the young god of love, Adonis, said to Venus, its goddess:—

> "Look, the world's comforter, with weary gait
> His day's hot task hath ended in the west;
> *The owl, night's herald, shrieks;* 'tis very late,
> The sheep are gone to fold, birds to their nest,
> And coal-black clouds that shadow heaven's light
> Do summon us to part, and bid good-night."

In June 1863, during heavy rain, a nest with nearly ripe young ones fell down on the sill of one of our windows; having an old mavis's nest, the young ones were put in it and placed on the sill. The old birds were in a sad pickle at first, flew screaming about, but, after seeing their young safely ensconced in their new home, at once set about putting a roof on the old nest, leaving the usual opening, and fed them till they flew.

The migration of birds has suggested many speculations —like the question where do sea-birds, thousands of miles at sea, get water to drink?—some theorists saying they fly towards the dark rain-clouds and receive it there. Formerly there was no difficulty in solving this or any other problem.

They were "*guided by instinct.*" Instinct, like Mesopotamia, or the bible, was a "blessed word" to naturalists, for like charity, it covered many of the sins of ignorance; but now science enquires the why and the wherefore of everything. In his day, Jack Falstaff said, "instinct was a great matter," he "was a coward upon instinct."

Modern scientists say that birds select narrow channels, and, having great powers of sight, and the natural means of taking a very wide view, simply see land on the other side, and fly towards it—that is if some of the channels crossed are not too wide for this.

An interesting report on migration was laid before the Biological Society in 1892, in which Professor Moseley said that penguins migrated regularly to Tristan d'Acunha, an island 2,000 miles distant from any land, which *they*, at least, could not see before they started.

In *Nature*, Mr Warde Fowler shows that swallows take long flights from the west to the east coasts in search of a narrow part of our channel during migration.

An officer of the German navy, Captain Sebelier, records some facts that lessen the difficulty:—"The islanders of the Marshall group in the North Pacific Ocean make long voyages in their canoes towards islets far beyond their vision, and reach them without any astronomical aid. From 20 to 50 canoes start together, and keep within signal of each other thus a large extent of sea is under survey. They go on until the islet is sighted; one takes the lead and the rest follow." That birds signal each other is established. May not birds guide each other on this principle? The Marshall islanders rest at night, but birds fly so rapidly that daylight is long enough for their widest transmarine journeys. Sometimes, however, many perish. A small schooner encountered a severe gale in spring on the coast of Greece, near Cape Matapan; a number of swallows and martins settled on the rigging after the gale, and were so exhausted that they made no attempt to escape when taken by the crew. But they all died, in spite of every care.

But swallows sometimes pass a night on board a ship and fly off in the morning, as the following fact from the *Daily Telegraph*, of May 25th, 1888, shows:—

"A curious episode in natural history occurred on board the French steamboat 'Abd-el-Kader' during the passage from Marseilles to Algiers. About six o'clock in the evening the sky became quite black with swallows. They alighted in thousands on the sails, ropes, and yards. After a perky survey of the deck they descended coolly on deck, hopped about among the sailors and passengers, and found their way into the cabins fore and aft. They were evidently fatigued after a long flight, and allowed themselves to be caught by the people, who gave them a welcome reception and food, which they enjoyed heartily. The little winged strangers remained all night on the vessel, and in the morning at seven o'clock the head look-out bird had no doubt sighted the Balearic Isles, for the whole flock made for land, after having spent a comfortable and refreshing night on board ship."

But swallows are not sailors, as a rule, and too much stress need not be laid on the difficulty and hazard that birds run in their migrations, from adverse winds and seas, for a bird may go from Britain to the Equator without the risk of gales at sea by crossing the water at Dover and again at Gibraltar, through France and Spain.

"They fear not more the winds and wintry cold
Than streams the bank, or wolves the bleating fold."

White of Selborne points this out, and was the more confident of its truth by having a brother at Gibraltar (a correspondent of Linnæus) who always found that swallows were very sparing of their pains in crossing the Mediterranean, for, having arrived at Gibraltar, they did not—as Milton has it—

"Rang'd in figure wedge their way
. . . . high over seas
Flying, and over lands, with mutual wing,
Easing their flight,"

like the "hairy caravan," but scouted and hurried along in little detached parties or broods, and, sweeping low over the land and water, crossed over to Africa at the narrowest passage—sloping over from Tangier—and, from birds sent by his brother, he was pleased to see some of those short-winged British summer birds of passage about whose migrations so much fuss had been made in his time; "because, if these birds are found in Andalusia to migrate to and from Barbary, those that come to us may migrate back to the Continent and spend their winters in some warm part of Europe." At all events, it is certain that many birds come or go to Gibraltar in Spring and Autumn, seeming to advance in pairs for the sake of breeding in Summer, and retire in parties and broods on the approach of Winter—the Rock of Gibraltar being the great rendezvous each way towards Europe or Africa. Mr Bowdler Sharpe, of the Zoological department of the British Museum, lecturing in Manchester in 1875, said that swallows and swifts, like the cuckoo, "when they leave our shores, go principally by the route of the Nile valley down to the Cape of Good Hope; so it may interest you to know the winter home of these birds."

In 1770, Mr White thought it "no mean discovery to find that our small, short-winged summer birds of passage were seen, Spring and Autumn, on the very skirts of Europe, as a presumptive proof of their emigrations." With this in view, strange, he could not get rid of the idea that swallows *hibernated* or slept through winter like the hedgehog, the tortoise, or the bat, instead of migrating. He alludes to this in no less than ten of his letters on natural history. In one he says—"I am now perfectly satisfied that swallows do not all leave this island in Winter;" in another, "After all our pains and enquiries, we are not quite certain to what region they do migrate; and are still further embarrassed to find that some do not migrate at all;" again, "Is it not more probable that the next church, ruin, chalk cliff, steep covert, or, perhaps, sand-bank, lake, or pool, may become their *hibernoculum*, and afford them a ready and obvious retreat?" In another, he "greatly suspects that house-swallows have some strong attachment to water, and though they may not retire into that element, yet they may conceal themselves in the banks of pools and rivers during winter;" which he iterates in another by saying—"At least, many of the swallows do not leave us in the winter, but lay themselves up like insects and bats in a torpid state, and slumber till the return of the sun awakens them;" which he reiterates in another, saying—"*Many of the swallows do not depart from this island*, but lay themselves up in holes and caverns, *and do, insect-like and bat-like, come forth at mild times and retire again to their latebræ*," all which he culminates by plainly saying that "a Swedish naturalist is so persuaded of the fact, that he talks as familiarly of the swallows going under water in September as of his poultry going to roost before sunset." All this is the more singular, as Mr White was a close observer and a good naturalist. He was led to this idea by spending some weeks yearly in autumn at Sunbury-on-the-Thames, near Hampton Court, where the swallows congregated in large flocks on their way towards the Equator, by Dover, for he says he "could not help being much amused with the myriads of the swallow-kind which assemble in those parts. But what struck me most was that they roosted every night in the osier beds of the aits (islands) of the Thames. Now this resorting towards that element at that season of the year seems to give some countenance to the opinion, strange as it is, of their retiring under water."

The active, lively swallow has been known to live nine years in captivity—a convincing proof that a second Nature can be acquired. Like the noted white elephant, or white blackbird, swallows also have albinos.

I have some in my collection which I got in the district, and stuffed. A brood of four pure white and one black were hatched in Argyle Brewery here. The white ones were all shot; and another brood of four white red-fronts were got at a farm steading close by.

A pair of sparrows had a nest under the eave of a two-storeyed house in Lade Braes; the hole was closed up. A pair of house-martins built under the eave close by. The sparrows took possession of their nest, and opened a large hole in the side of it, and had seven young ones; four of them fell out in the first week of June, being pinched for room. A man went up with a ladder and found the three remaining young ones. I saw the old ones feeding them on the 13th.

At four o'clock afternoon on the 12th of July 1892, I saw about fifty swallows and sand-martins flying around two men and two horses engaged cutting hay at the Kinness Burn. They flew quite close, leisurely catching the flies stirred by the cutting, as the robin eyes the delver in his garden for worms. As I stood watching them I saw a red-front bathing in the burn. It flew up and down the burn, dipping its breast into the water, immersing itself as if enjoying the bath, like a gleeful young maiden. Swallows also drink on the wing. At noon on the 21st of June 1892—a clear, sunny day—I saw the midges dancing and darting about in thousands above the water in this burn at high water. They seemed as quick on the wing as the swallows themselves. I observed their range of flight was from the surface to about five feet up, and about six or eight yards up and down the stream. The chief aim of their short life seemed to be courting and dancing on wing, two always striving to be together, and even when joined in wedlock they seemed little impeded, for all danced up and down, interlacing each other like a flying foursome reel. But on the 28th I saw thousands of them floating dead, like scum on the surface—their brief mission of life and love being done —while those still flying above the water were more listless than on the 21st. It was the scum-like look of the water which first drew my attention, and I had to watch awhile before I saw it was scum of dead midges. The only places where the living still danced was under the shore bridge and close above it. I followed the burn down to there. It was a bonnie sunny day at noon—I saw several swifts flying amongst a lot of red-fronts, white-rumps, and sand-martins skimming together, low, over the burn, their different modes of flight being discernible, for, while the swifts dashed round in circles, the swallows swept over the surface with rapid turns and quick evolutions, and the martins with fluctuating movements like the butterfly.

Longfellow has a pretty poem on a swallow that built its nest on the tent of the Emperor Charles of Spain when besieging a town in Flanders, which he would not allow any one to touch; and when the siege was ended he left his tent standing rather than molest the bird and her brood.

"Yes, it was a swallow's nest,
Built of clay and hair of horses,
Found on hedge-rows east and west,
After skirmish of the forces.

. . . . . .

'Let no hand the bird molest,'
Said he solemnly, 'nor hurt her!'
Adding then, by way of jest,
'Golondrina is my guest,
'Tis the wife of some deserter!'

So, unharmed and unafraid,
Sat the swallow still and brooded,
Till the constant cannonade
Through the walls a breach had made,
And the siege was thus concluded.

Then the army, elsewhere bent,
Struck its tents as if disbanding,
Only *not the Emperor's tent*,
For he ordered, ere he went,
Very curtly, '*Leave it standing!*'

So it stood there all alone,
Loosely flapping, torn and tattered,
Till the brood was fledged and flown,
Singing o'er those walls of stone
Which the cannon-shot had shattered."

I know an instance where a house-martin's nest with young ones fell from the window corner down to the street. Some of the young ones were killed, the others put in a cage, and hung out of the window. The old birds went into the cage every morning and fed them for a fortnight until they were able to fly, and then left it along with them. On going through Abbey Park, August 22nd, 1892, I saw they had already begun to congregate before leaving us in the end of September, for they were settling in dozens on the high, dead branches of a very large and old saugh or willow tree near the burn. There were no swifts amongst them, for, with the exception of three or four which I saw at the old Castle, they had already all slipped quietly and unobservedly away. But I saw several starlings —taking their place, as it were—flying amongst the swallows, also hawking for flies—the quick flutter and sailing with outspread wings up and down after the flies leaving no room for doubt. It was very sultry—80 deg. in the shade—a wave of heat having passed over Europe. In France it was 96 deg. in the shade. The swallows were at least 2,000 feet up, and seemed like butterflies.

It is strange that swifts, which seem to live the same as swallows, should leave us in fine weather, in the middle of August, while the swallows continue till the first of October; and is the more strange when we know of instances of some remaining till September through an accident to their eggs or young, causing a second brood.

SAND-MARTIN.

Hirundo Riparia. (Linn.)

> "Do you think me a swallow, an arrow, or a bullet?
> Have I in my poor old motion the expedition of thought?"
> —*Falstaff.*

This is the smallest of our *hirundines.* It is only 5 inches long and 11 inches in extent of wings, the white-rump or house-martin being $5\frac{3}{4}$ and 12. It has all the quick, graceful flight of the others, with whom it skims along the scaurs, from the Kirkhill (where stands the last relic of the old Culdean Chapel) to the Martyrs' monument, near the Witch Lake, where the modern sheet-iron offshoot of Popery is, for a colony of the little sand-martins has for centuries taken up its abode in the high brae, overlooked by the old Abbey wall, and the crumbling ruins of the once magnificent Cathedral, near to where decrepit, but noble, old Walter Mill was burned rather than bow to a lie. Another colony is in the high brae above the Witch Lake, near where stands the plain, but telling, monument of our five martyrs who were burned for the sake of truth.* There is another colony at the steep brae on the way to Kinkell. It is plainer dressed than the others, being greyish brown on the upper parts and brownish white on the under. The wings are long for its size; the tail of moderate length, and slightly forked. There is so little difference between the male and female, as not to be known without dissection. Like the rest, they arrive here in full plumage, and generally from the 4th to the 16th of April. In bleak seasons they are the last of the three. As their homes with us are exposed to the sea, possibly the cold east winds delay them. In 1891, one of my notes says:—"This is the 23rd of April, and a very cold, sleety day it is. No sight of the swallows; but the very pear tree buds in my little garden are no further advanced than they were six weeks ago, which shows that the buds, as well as the birds, must bow to the weather." In the end of March 1884 a sand-martin flew into the open window of the Bellrock Lighthouse. It was quite exhausted, and slept seventeen hours; there had been adverse gales. They were seen on the Tweed as early as the 20th of March that year, and at Allanton Bridge on the 24th. Like the others, they fly about for a week before beginning the cares of married life, fulfilling the natural duties they came for—preparing a home for the coming brood in holes laboriously dug out of the face of the brae with their short little bills, and pierced from 18 to 54 inches in. They occupy their old cells, or begin to burrow new ones; and it is interesting to watch them clinging to the brae with their claws about 60 feet up, steadying themselves by their tails. They begin by pricking a small hole, which they enlarge by moving their shut bills round and edging off the sand until they get room to stand on; then push out the loose sand or gravel with their feet until a sufficient depth is reached—generally from 2 to 3 feet, sloping upwards, at the end of which the nest is formed by scooping out the sand large enough to hold it, about 6 inches in diameter, while the passage is from 3 to 4. Both male and female work like little Trojans, or industrious man and wife working together, when the marriage is, like the sand-martin's, one of love—hence mutual interest. The hole is not always straight in, but varied, to evade some hard part of the brae. Sometimes when a stone intervenes it is abandoned, and they begin their labours afresh. The nest is composed of dry grass and grass roots, profusely lined with feathers after the eggs are laid; even when making it, like the red-fronted swallow and house-martin, the sand-martin treads, or copulates, in it, as the swift does the same duty on wing—neither of them giving the rueful cause of sorrow (through the unnatural conduct of his daughters), which made poor mad King Lear question the sin of adultery.

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* Paul Craw, Patrick Hamilton, Henry Forrest, George Wishart, and Walter Mill.

> "Die for adultery? No!
> The wren goes to 't, and the small gilded fly
> Does lecher in my sight.
> Let copulation thrive, for Gloster's bastard son
> Was kinder to his father, than my daughters
> Got 'tween the lawful sheets."

Be that as it may.

They lay five, sometimes six, pure white eggs, which, when fresh, seem pink by the yolk, as they are transparent. On the 23rd of May 1858, I dug out and inspected three nests at Martin's Point, at the estuary of the river Eden. One had three, another four, and the other five eggs—the latter deep-sitten. One was in a small hole 3 inches diameter, 4 feet up from the beach and 18 inches into the bank. The other two were 8 feet from the beach—one of them 4 feet 6 inches, the other 4 feet 2 inches, dug into the bank. These two were 6 inches in diameter at the entrance, but narrowed as they went in. They were too far in to reach with my hand, so I dug from the top. The nests sloped up to within 9 inches of the surface. Both of the martins were in one of the holes (the one with three eggs). They did not run far back, but kept near the entrance ready to fly out. I put my hand on the hole and caught one of them trying to get out, but let it away. They had likely been breeding in the hole. The nests were back at the end of the holes, enlarged to hold them. From what I saw I am convinced they do not put in the feathers until all the eggs are laid and the bird begun to sit, for the two with three and four eggs had none (except one or two mingled with the dry grass), while the one with five eggs was filled with large feathers of the shielduck, eider, and mallard, with some of the gull's. I counted 68 feathers in this nest, averaging 3½ inches long; some of them 5 inches. I tried other five holes, three of which had nests; the other two were only 16 inches in, and either abandoned or only making. The most of the holes I saw had nests, but, as I had got all the information I wanted, I did not disturb the busy little colony further. Next year I got two nests near the same place, in a bank not 4 feet high, and only 3 feet up from the beach. I have got them at the East Sands only 1 foot from the sloping sandy brae. Thus we have had sand-martins breeding in the vicinity of St Andrews in holes from 3 to 60 feet up from the sea beach. Inland, they select quarries, sand pits, or river banks for the same purpose, as, like the flies, they are widely dispersed over Britain, and like the rest of the swallow kind, fulfil an important mission in the wise economy of Nature by keeping in due bounds the balance of insect life, for one brood of martins destroy more then 6,000 flies daily. As a proof of the viscid saliva, and the number of flies they carry in their mouth at one time, I have counted no less than 20 flies taken from the mouth of one shot for the purpose. Unlike the house-martin, the sand-martin does not seek the neighbourhood of man, hence never seen in his streets, but often seen beside him when angling for trout. The other day when an angler was fishing in the river a martin seized the fly, and was struggling in vain to free inself from the hook. As the bird was of less use than a fish, he unhooked and let it away. There is an old proverb that the wild goose and the swallow never meet, which is scarcely correct, for on the 26th of September 1891 wild geese were heard passing St Andrews before the swallows had left.

Sand-martins prefer sequestered spots, like the banks of rivers or braes. The nests are near the surface of high cliffs, or where there is a stratum of sand, or within 4 feet of the ground in low river banks. They have two broods in the year, and for a time feed their young on the wing. Sometimes their nests are invaded by sparrows. When two quarrymen were working below they heard the martins skirring above them. A young one fell at their feet. On looking up they saw a cock sparrow holding another one by the throat, which he also trundled over. He did the same to the other three, and took possession of the nest. The old ones got ten of their friends, and tried nearly all day to dislodge the daring burglar, but he beat them all off. The quarrymen were so angry at the little thief that they got a long pole and a piece of clay and shut him up to perish in his stolen abode.

Genus, CYPSELUS.

SWIFT, *Generic Characters.*

The features are—bill very short, triangular, and wide at the base, the gape extending beyond the eye, Nature's design being to enable them to catch flies readily. The nostrils are on each side of the ridge (unlike the swallow's, which are at the base). They are long and open, having a margin of small feathers. The tarsi are very short and thick, and covered with short hair; the feet have four toes, all pointing forward—unlike all other birds, which have three before and one behind, each entirely separate, and armed with strong hooked claws (more like a quadruped's than a bird's), which enables them to cling to a perpendicular surface—a wise provision, as their nests are generally in holes of old buildings or perpendicular cliffs. Owing to their extreme shortness of legs and length of wings they cannot fly from a flat surface, so they never alight on the ground, and only on such places as have a brink, from which they can fly in a curve. They cannot walk unless with a hobbling gait; and also, unlike other birds, their toes have only two joints—the smallest toe, which should be the hind one, having only *one* bone. Although the tail is long and deeply forked, and has only ten strong shafted, tapering feathers (while the swallows have twelve), it is much exceeded in length by the long, narrow, and pointed wings—all which account for their great speed and marvellous power of flight, calculated at the rate of 250 miles an hour—the swiftest of all birds. It is computed that hawks and falcons fly at the rate of 150 miles, eagles 140, and swallows about 100 miles an hour. The heavy eider duck can fly 90 miles, and even the lazy, flapping rook can fly 25 miles an hour; but, according to Spallanzi, the common black swift outflies them all, hence it is well entitled to the name of swift, for, as Shakespeare says—

> "True hope is *swift*, and flies with swallow's wings."

Also that

> "Experience is by industry achieved,
> And perfected by the *swift* course of time."

For, as the messenger says in "Henry VI."—

> "One would have ling'ring wars with little cost,
> Another would *fly swift*, but wanteth wings."

Also, in "Richard III."—

> "If you will live, lament; if die, be brief,
> That our *swift-wing'd souls* may catch the King's."

And, in "As you like it," he pictures the wounded stag—

> "Standing on the extremest verge of the *swift brook*,
> Augmenting it with tears."

Or, as Patrick Hamilton is made to say in a local tragedy of that name, when depicting the picturesque German town of Marburg, whence he first fled from persecution—

> "Pure is the air: *the swifts that flash and wheel*
> *Shriek o'er the golden scene for ecstasy.*"

A true picture, for swifts actually shriek for joy in their amorous flight. There are only two species known in Britain —the alpine swift *(cypselus alpinus)*, and the common, or black swift *(cypselus murarius)*; but as the first is seldom seen in Britain, and never about St Andrews, I need not describe it.

THE COMMON OR BLACK SWIFT.

(*Cypselus Murarius.*) *Temn.*

> "Go, mark the swift in rapid, giddy wing,
> Dash round the steeple, unsubdued of wing."
> —*White.*

Dr Latham was the first who suggested the propriety of separating the swifts from the swallows. Temnic, Illiger, and others adopted the generic term *Cypselus* for these birds. Like the swallows and martins, their mouth opens as far back as the eyes. Their gape is three-quarters of an inch wide, but their bills are very small and weak, tapering to a narrow, blunt point, which shows that Nature never meant them to live by pecking—but by flying; and, like all her work, she has succeeded wonderfully in making a masterpiece of flight. The tongue is also very small—only a quarter of an inch long—and slit. The salivary glands are large, and placed under the tongue in two large masses, so that the mouth is abundantly supplied with that viscid secretion so useful in catching their insect food. The tail is deeply forked, the lateral feathers being 1¼ inch longer than the middle ones. The bill, feet, and eyes are black. The plumage blackish brown, glossed with green; throat white. Length to end of tail, 7½ inches; extent of wings, 16½ inches; the wings, 7 inches; and tail, 3½ inches long, which are longer in proportion than any other bird's. The bill is only a quarter of an inch long, and the tarsus hardly half an inch. The female is a little less and lighter in colour. Like the swallows, they moult before they come to us, and arrive in perfect plumage, which becomes abraded before they leave us, to be again renewed in Africa or Asia. They arrive at St Andrews about the 1st of May, and at once resort to their breeding-places, in the crevices of the old ecclesiastical stronghold of Popery — the Castle of St Andrews — where Archbishops James Beaton, Hamilton, Trail, and others lived, and where Cardinal David Beaton was killed; and, for the want of pointing, is now the stronghold of the swift. They also frequent the Cathedral ruins and Witch Lake cliffs, and Scaurs on the seaward side of the little grey old city by the sea. But into the tower of old St Rule they cannot pierce—its hard, undecaying stone and excellent mortar being proof against the tooth of time, as well as the impotent bill of the screaming swift. In my boyhood it was called the "Merlin," or "Deviling," from some old superstition. Its wonderful speed is caused by quick beats of its long, narrow wings, then gliding through the air while its extended wings seem motionless. It shoots along, turns and flutters, ascends, comes down, curves and winds, and darts screaming amongst its companions, and is lost to view. The ease with which it rises, falls, or glides in curves, or abruptly stops in its full career is marvellous, and it is only familiarity or carelessness of observation which lessens the perfection of its evolutions. In fine weather they search the air for insects on tireless wing, nor does rain deter them from the pursuit. Even in heavy thunder showers they may be seen gliding and wheeling; and in dull, drizzly weather, when swallows have disappeared, they pursue their avocation, although it is singular how the insects exist in such weather. On the 3rd of June 1888 it had rained all day, and was very stormy, when at eight o'clock at night (still raining) I noted that they flew and dashed under the projecting moulding of a large new house at the Scaurs, and one by one clung close together to the wall like bats for about two minutes, then off again. I heard their wings clap against the wall before they clung, and made a dirrling sound with their wings, as if in the very height of excitement in the electric state of the air. It could not be flies they sought when clinging to that house, nor nesting-places, as the house was new. On the 19th of July 1892 I also noted that in gales of wind swifts press against the wind to keep them from blowing to leeward by holding their wings half bent downwards like a bow. This was at three o'clock P.M. in a North-East gale, with rain. About seven o'clock in the evening of the 4th of July I observed about a score of them sailing slowly like the kite about 300 feet up, gliding back and forward in a radius of about 300 yards in a slight breeze, which shows that they can adapt their flight to all states of the weather where flies are, for on going round by the harbour and up the pends the same evening I saw others flying quite low under the plane-trees at the Priory. In the long days of June and other summer months they are on the wing all day, more or less, from half-past two in the morning till ten o'clock at night. At a quarter to ten on the 29th of June 1892—a fine night—I stood opposite the old Castle and watched them flying into their nests—some of the holes so small at the entrance that they had to edge in sideways. It was so dusky that I could scarcely see them against the dark wall; and it was certainly a feat in Nature's perfection of flight to see how her creatures, flying at such a speed, could enter such mouse-like holes in the twilight. On coming round by the Kirkhill many were flying about between the old Abbey wall and the brae above Dennis Work, some of them skimming within a foot of the ground, then disappearing over the brae where the sand-martins breed. They sometimes whisked close past my head, and on coming home by North Street several were flying high around the College steeple spire; another proof that they just fly where the flies are. One night I stood on the Kirkhill and tried to see how many I could count at one time, but I could not count more than thirty, there were so many gliding and wheeling at one time; they flew so fast and far, like meteors, over the wall and brae, and around the ruined turrets of the Cathedral. They are amongst the first birds in the air at early dawn, and are the last at night; and when courting in May, high above the ground, one will be seen to settle on the back of another and sink down together with a piercing scream—so loud and shrill that we well may wonder how such a short, flat, tracheal pipe can do it.

To corroborate this, White of Selborne says:—"If any person watch them of a fine morning in May, as they are sailing round at a great height from the ground, he would see every now and then one drop on the back of another, and both of them sink down together for many fathoms with a loud, piercing shriek, when the business of generation is going on."

In his little poem of "Dualisms," Tennyson unwittingly describes this—

"Over a stream two birds of glancing feather
Do woo each other carolling together,
Both alike, they glide together
Side by side."

They seldom scream when flying singly, but when a number of them are seen gliding and wheeling around the ivied gable of the old Castle on a still evening in May, they seem to revel in company—like little black-winged demons overjoyed at their own perfection of flight. As Tennyson says—

"Chasing themselves at their own wild will,"—

—unfettered in the midst of love and insect life; for unless it be exuberance of delight, I can see no other reason for their mingling screams—as otherwise they neither twitter nor sing.

On still summer evenings, when the setting sun displays his broad red disc before sinking to rest, it is interesting to see and hear them screaming and hunting together as it were in packs through the air, racing and chasing each other over the house tops as you saunter along the Scaurs. They fly so rapidly that you can hardly fancy they are hunting for prey; yet if you watch them closely a sudden turn denotes the capture of a fly. When they separate they cease screaming, and, like ærial skaters, glide through air with rapid strokes of their tireless wings. Several will sweep past as if to overtake one another, and then their shrill screams form one continuous skriek of delight—certainly not of fear or anger, for they are loudest when close together—and never show any signs of animosity or quarrelling. They revel in sultry weather and coming thunderstorms, as if the electric state of the air had made them mad. They may then be seen wheeling and dashing around the old Castle or Cathedral ruins screaming in concert with peculiar violence. At other times they rest during the day in crevices. I have one in my collection which I got on opening a garden door nearly opposite the Castle. It had crept in the crevice between the top of the door and the lintel, and was inadvertently crushed in the opening. It only lived a few minutes. To enable swifts to fly so rapidly and turn so easily, their wings and tail are extremely long and narrow to fit them for catching their equally agile prey; unlike the broad concave wing of the partridge or grouse, which, although they too can fly at great speed in a direct line, would be useless at catching flies. The wing of the swift is long and narrow, and instead of concave is straight horizontally, while its humeral joint is so free that when holding the bird in your hand the wing hangs loose as if it were broken, while in reality the muscles are remarkably strong; and while the secondary quills are very short, the primaries are comparatively longer than those of any other bird, and furnished with strong but elastic shafts. The tail is similarly constructed—deeply forked and divided into two elongated points. Also, as length of neck were worse than useless in gliding through the air, the neck of the swift is so extremely short that the head seems to be stuck upon the shoulders, without a neck at all. And as the long pointed bill were useless to pick flies in the air, like the swallows, the swift merely opens its mouth, which is extremely wide and so abundantly supplied with a viscid secretion, that, like an unwrought spider's web, it entangles the flies and prevents their escape, although the mouth were opened the next moment. And as there is no needless superfluity in Nature, a bird so formed has little need to walk; therefore its feet are reduced to stunted toes, armed with claws, by which it can cling to the surface when entering its nest, or feeding its young at the mouth of the narrow hole, often clinging for three or four minutes to allow them to pick out the many flies; while its gait, even when aided by its loose and seemingly broken wings, is a mere crawl, or hobble, like a seal's on land. Nor can it fly from a flat surface, which has been tested, but it can launch into its native element from a little eminence or brink where it can get the use of its long wings and tail. As it eats, drinks, bathes, collects materials for its nest, and seems to propagate on the wing, it passes more time in the air than any other bird, and, as White says, "performs all functions there save those of sleeping and incubation." When collecting straws and feathers for its nest its inability to walk may seem a fault in Nature, but so great is its dexterity on the wing that it picks these up almost imperceptibly as it skims along. With us the nest is placed in the crevice of a ruined wall, tower, or cliff—the face of the old Castle looking up Castle Street having the appearance of being riddled with small cannon balls from their number, besides those of sparrows. The swift often overmasters the sparrow, as the sparrow overmasters the house and sand-martins. In other places where there are unused sheds, or lofts, or crevices in roofs, they generally breed under the eaves. As many as nine of their nests have been got in some old thatched roofs in a space of 25 feet. They also sometimes breed in the holes of trees. The nest is composed of roots, straw, grass, wool, hair, and feathers; is bulky, but shallow—about 6 inches in diameter and only half-inch thick—loosely formed, but firmly cemented together with the viscid secretion from their mouth. The eggs are two, pure white, about an inch long. I have got their nests with two young ones in the end of June, high up in crevices at the Witch Lake Brae. I had to get a 30-feet ladder for the purpose. I expected eggs (as I was then collecting them in 1858). When I brought the raw young ones down and placed them in my little son's hand, who expected the eggs, he let them fall on the sand, saying they made his hand "yuckie." They were unhurt, and I carefully replaced them.

Unlike the swallows or martins, the swifts have only one brood in the year (at least with us). They cannot possibly have two, for it is about the end of July before the young are able to provide for themselves. They leave us—young and old—by the 20th of August (about the time the swallows and martins bring out their second brood. I have seen swifts after the 20th, but very few. For instance, I was anxious to know on the 22nd, 1892, if they were all away, so went to the old castle (their chief stronghold), and after waiting a while saw only one, hawking for flies. It flew into its nest and remained four minutes (probably to let its late young pick the flies out of its mouth), then off again for more. This corroborates White of Selborne's close observation, who says:—

> "Our swifts, in general, withdrew this year (1781) about the 1st of August—all save one pair, which in two or three days was reduced to a single bird. The perseverance of this individual made me suspect that the strongest of motives—that of an attachment to her young—could alone occasion so late a stay. I watched, therefore, till the 24th of August, and then discovered that, under the eaves of the church, she attended upon two young, which were fledged, and now put out their white chins from a crevice. These remained till the 27th, looking more alert every day, and seeming to long to be on the wing. After this they were missing at once; nor could I ever observe them with their dam coursing round the church learning to fly, as the first broods evidently do. On the 31st I caused the eaves to be searched, but we found in the nest only two callow, dead, stinking swifts, on which a second nest had been formed.
>
> The following remarks on this unusual incident are obvious. The first is, that though it may be disagreeable to swifts to remain beyond the beginning of August, yet that they can do so is undeniable. The second is, that this uncommon event—as it was owing to the loss of the first brood—corroborates my former remark, that swifts breed regularly but once, since the contrary was the case, the occurrence above could neither be new nor rare."

By the middle of August—their domestic duty of multiplying their species done—they leave us for sunnier climes—down by the Nile to the Cape of Good Hope—even in the middle of our warmest weather, residing with us only 3½ months in the year; as brief a time as our many human summer visitors, who, also like the swifts, annually visit the grey old city, not to catch flies, but to play at golf, or wander along its extensive shell-strewn sands—east and west—or along the bonnie fern-covered braes of Kinkell.

Swifts do not assemble in clusters (like the swallows) before leaving, but slip away unseen, and they are never missed by me without the regretful feeling which follows the loss of a friend.

Family III.

(Caprimulgidæ.) *Linn.*

The members of this family resemble the swallows and owls intermingled. Like the swallows, they live chiefly on insects caught on the wing, and, like the owls, they are nocturnal, or fly in the twilight. They have the length of wings and tail, and speed of the one, with the soft, downy plumage of the other; along with the short bill and wide gape of the swallows and swifts, they have the large, fixed eyes of the owl. Their feet and toes (with the exception of the middle toe) being also weak, they can only hobble in walking, like the swallows. The upper margin of their very wide gape is furnished with long, movable bristles, which form a network to retain their insect prey. Being nocturnal feeders, they are not inaptly called the night hawk. As there is only one European species, consequently there is only one seen near St Andrews.

The European Goatsucker.

(Caprimulgus Europæus.) *Linn.*

> "The night hawk is singing his frog-like tune
> And twirling his watchman's rattle about."—*Wordsworth.*

This bird is sometimes called the night-jar, night hawk, fern-owl, churr owl, &c. Like the swallows and swifts, it is a summer visitant, arriving about the end of May—later than the swifts. It is the last of our summer migrants, and departs about the end of September. It received its absurd name of *caprimulgus* (goatsucker) from the ancients, in the foolish belief that, from the size of its mouth, it fastened on the teats of the goat.

Aristotle, in his "History of Animals," says:—"The bird called *ægothelas* is a mountain bird; a little larger than a blackbird, and a little less than the cuckoo. It lays eggs—two or three at most—and is of a slothful nature. Flying upon the goats, it sucks them, hence its name. They say when it has sucked the teat it becomes dry and the goat becomes blind. It is not sharp-sighted by day, but it sees at night." Ælion says—"Sucking the goat makes the teat dry or blind, and so the flow of milk is stopped," and that "it is fearless of the vengeance of the goat-herds." Pliny also states that the goat-suckers "are nocturnate thieves, for they cannot see by day. They enter the folds, and fly to the udders of the goat to suck the milk, from which the udder dies away, and blindness falls upon the goats." Thus were harmless and useful birds persecuted by the ancients, and called thieves, as modern game-keepers shoot down useful owls and kestrels, and call them vermin. Even up to the end of last century White of Selborne says—"The country people have a notion that the fern owl or churn-owl—which they call a puckeridge—is injurious to weaning calves by inflicting, as it strikes them, the fatal distemper known by the name of "puckeridge;" but the malady is caused by the *œstrus bevis*—a diperous insect which lays its eggs along the chines of kine, where the maggots, when hatched, eat their way through the hide into the flesh, and grow to a very large size; and the poor goatsucker, instead of striking the beast with distemper, may be doing its best to kill the insect that causes it. Thus has the harmless bird, through ignorance, been persecuted under a double imputation in Italy of sucking the teats of goats, hence called *caprimulgus;* and with us of giving a deadly distemper to cattle.

It was also, like the swallows, erroneously thought to fly with its mouth open in pursuit of its prey, which the long movable bristles of its upper mandible gave rise to. The flight of this bird, when in pursuit of beetles or moths, is rapid, with quick evolutions, and more buoyant than the swallows. I think Mr Selby in error when saying "it flies with its capacious mouth fully extended, and as the bristles lining the upper mandible diverge or contract by muscles attached to their roots, they greatly assist in the capture of its prey," because were a bird with so wide a mouth to fly with such velocity as it does, its gullet and stomach would be chokingly filled with air, as its pharynx has no particular apparatus for excluding it. The notion of its seeing through the thin, transparent membrane that lines the mouth is even more preposterous, as its eyes are fixed in their orbits like the owl's, and cannot move in their sockets.

It is chiefly found in furzy commons and moors and hilly ground covered with ferns. Fifty years ago it used to frequent Priorsmuir, Kinglassie, and Tentsmuir, but I have not got their eggs for many years. Like the harriers, the goat-sucker (or fern-owl) has almost disappeared near St Andrews. The last one I got was a fine male shot at Cambo, six miles from here, on the 4th of August 1857, which I stuffed, and still have in my collection. I got another on the 28th of May, the same year, also shot at Cambo.

It lays on the ground (making no nest) amongst the heath, ferns, or grass—near some cultivated wooded district—also in the open spaces of large woods. The eggs are two in number (1¼ inch long), of a perfect oval, and are amongst the most beautiful of our British birds' eggs—finely spotted and marbled with white, yellowish brown, and grey. During incubation, and when hawking for prey, the male utters a very peculiar noise, not unlike the whirring of a spinning-wheel. Though it may sometimes utter this burring note as it flies after moths, yet, in general, it is uttered when sitting on a bough. It usually perches on a bare twig, with its head lower than its tail, in which position White says he has watched it "for many a half-hour as it sat with its under mandible quivering." He says it is most punctual in beginning its song exactly at the close of the day, so exactly that he has known it begin "more than once or twice just at the report of the Portsmouth evening gun." In describing which, Wordsworth says—

"The busy dor-hawk chases the white moth with *burring* note."

And in the Waggoner," he also says—

"The *burring* dor-hawk round and round is wheeling,
That solitary bird
Is all that can be heard
In silence deeper far than that of deepest noon."

It is called the dor-hawk from its feeding on cock-chafers, or dor-beetles. The burring noise is caused by the windpipe—on the same principle as cats purr. White says:—

> "You will credit me, I hope, when I assure you that, as my neighbours were assembled in a hermitage on the side of a steep hill where we drink tea, one of these churn-owls came and settled on the cross of that little straw edifice and began to chatter, and continued for many minutes. We were all struck with wonder that the organs of that little animal, when put in motion, gave a vibration to the whole building! This bird also makes a small squeak, repeated four or five times, when the cock pursues the hen in a toying way through the boughs of a tree."

It also utters a shrill, whistling cry when on the wing. It generally whirrs between twelve at night and two o'clock in the morning. Towards evening the goatsucker may be seen skimming along the edges of a wood, with a light, wavering flight, winding in curves like a swallow, but with less speed. It is seldom that more than two or three are seen at a time, but Montagu says he "has observed (in Scotland) eight or ten on wing together in the dusk, skimming over the surface of the ground in all directions in pursuit of insects." During day it rests on the ground, among furze or fern, or on the horizontal branch of a tree, on which it rests longitudinally, as the extreme smallness of its toes prevent it from perching like other birds, although its middle toe is long and furnished with peculiar serrated comb-like claws, the use of which is not well known.

From the 20th of August until near the end of September 1891 I watched one which frequented Abbey Park. I often saw it in the gloaming hawking for insects near the burn amongst the trees. It flew with great facility, jinking up and down after the moths and beetles, and often alighted on the grass. It took refuge during the day amongst a lot of waste wood lying on the ground in a sheltered square. On turning over the wood one day at noon it was startled, and flew up amongst the leaves of a large plane tree, and I never saw it again. But it was its time to migrate. Being either a young bird or a straggler, I was not favoured with its love-note, nor, owing to the dusk, could I detect exactly how it caught its prey, whether by its mouth or feet.

One shot about ten o'clock at night in the end of July had four large moths in its mouth, three of which were alive an hour after the bird was dead—proving that they collect insects in their mouths like swifts and swallows, and have also (besides their bristles) a viscid secretion to attach them. The man who shot it opened its mouth, but started, exclaiming that it was not dead. No wonder, for the three large living moths wriggling in its mouth made him think so.

During the breeding season, when the evening is warm and still, the male—perched lengthwise on the horizontal branch of a tree—makes the loud whirring noise compared to a spinning-wheel. When flying, he sometimes, like a proud male pigeon, strikes the tips of his wings so forcibly together as to be heard at a considerable distance, at the same time emitting a sound not unlike a man whistling on a dog. From the varied sounds he emits, the night-jar has been likened to a little ventriloquist.

The Field, May 12th, 1888, says :—

> "A writer in the *Pall Mall Gazette* carefully discriminates the three distinct and totally dissimilar notes of the night-jar, but Yarrell only mentions two of these; and although the bird frequents a field in front of our house every summer, we only know the curious burring noise and the singular crack like that of a whip. The third is uttered when two night-jars are perched each on a separate gable of the house; suddenly, first one, then the other flies off with a loud flapping noise, caused by striking the wings together over the back. They sink slowly down with outspread wings, and alight upon the gravel under my window. They bow and sidle to each other, and then is heard a long-drawn and very musical bubbling note or trill, which dies away into silence. I had often heard this sound in the distance, and been puzzled by it, never dreaming that an amorous night-jar could produce any note so soft and liquid."

It is about the size of the missel thrush, but having longer wings and tail, and more full downy plumage. The body is not larger than that of the mavis. The wings are very long and narrow, reaching to about an inch of the long tail, which, unlike the swallows' and swifts', is much rounded—the middle feathers an inch longer than the side ones.

The general colour of the upper parts is ash-grey, minutely dotted, and undulated with umber, variegated with brownish black and pale yellowish red. The head and back are marked with streaks of dark brown. The quills and tail are similar. On the inner webs of the three primary quills of the males there is a large white spot. The two outside tail feathers have also a large patch of white at the end. The bill and claws are dusky; the feet, flesh-coloured; iris, brown. The mouth is very wide—more than an inch across—but the tongue is extremely small. The bill is also very small, and weaker than that of any other British bird. The head is broad and depressed; the roof of the mouth nearly flat. The eyes are very large—their aperture five-twelfths of an inch, and that of the ear half an inch long. The bristles of the mouth are black, and three-quarters of an inch long.

Length of the male to end of tail, 11 inches; extent of wings, 23; wing, 7¾; tail, 5¾; tarsus, only three-quarters of an inch long. The female is about an inch smaller; similar in colour, but without the white spots on the wings and tail. So far as I know, the bird is now rarely met with in Fife—at least near St Andrews. When fledged, the young are like the female, but darker, and the markings larger. In this state they resemble young cuckoos, for which they are sometimes mistaken; but the long serrated claw distinguishes them—regarding the use of which claw nothing is yet definitely known. Mr Vigors says that it is used for the purpose of seizing, while Mr Dillon is of opinion that its chief use is simply to comb out the bristles or hairs which surround its gape; and Mr Swanson opposes this theory on the ground that an American group of this family have no bristles round the mouth, and yet have the serrated claw. Mr White is more definite, but still uncertain, for he says:—

> "On the 12th of July 1771 I had a fair opportunity of contemplating the motions of the *caprimulgus* (or fern-owl) as it was playing round a large oak that swarmed with *scarabæus solstitialis* (or fern-chafers). The powers of its wing were wonderful, exceeding, if possible, the various evolutions and quick turns of the swallow genus. But what pleased me most was that I saw it distinctly, more than once, put out its short leg while on the wing, and by a bend of the head, deliver something into its mouth. If it takes any part of its prey with its foot, as I have now the greatest reason to suppose, it does these chafers. I no longer wonder at the use of its middle toe, which is curiously furnished with a serrated claw."

Than this, little more is known of this curious and mysterious nocturnal bird, only we know it neither sucks the teats of goats nor strikes cattle with distemper.

As we have no British species of the IV. family (the *Trogonidæ*) in this arrangement, I pass on to

FAMILY V.

THE HALCYONIDÆ, OR KINGFISHERS.

The fifth and last family of this tribe (the Kingfishers) meets the *meripodæ* (the bee-eaters) at the other end of the circle. The *halcyonidæ* prey chiefly upon fish and aquatic insects, which they take upon wing, seizing the insects in their flight, and the fish by plunging down upon them as they rise to the surface of the water. Their feet are formed for grasping, but are incapable of walking. Their flight is rapid and direct. Their plumage is of the richest and most vivid colours, with a changing lustre according to the rays of light. They are chiefly natives of the warmer climates of Asia, Africa, and America; Europe having only one species of the genus *alcedo* —our own little kingfisher—by no means a stranger around St Andrews.

Genus, ALCEDO. *Linn.*

KINGFISHER, *Generic Features.*

Bill long, straight, quadrangular, higher than broad; thick and pointed; both mandibles tapering to the point of the bill, which is longer than the head. The smallness and weakness of their feet unfit them from walking, so that they merely take a station, from which they dart upon their prey, or to which they return after an extended flight, and well deserve the specific name of "darters." Their wings are short, or of moderate length, but of great breadth; and their flight, although seldom buoyant, is always rapid. In the form of their feet the bee-eaters agree with the kingfishers, and their bill is very similar, although somewhat arched. Their wings differ only in their primaries being longer.

THE COMMON KINGFISHER, OR HALCYON KINGFISHER.

(Alcedo Ipsida.) *Linn.*

> "With pride the water multiplies
> The flitting halcyon's vivid dyes."—*Wordsworth.*

In describing this group of birds, which have the bee-eater at the one end of the circle and the kingfisher at the other, we can scarcely fancy birds more unlike than the swifts and goatsuckers, and the common kingfisher. The extreme length of wings and tail, and as extreme shortness of bill on the one hand, and the short, broad wings and stunted tail, and extreme length of bill on the other, show the wonderful adaptation of Nature to the paiticular end she has in view—for all are insect feeders, and yet how different from the easy, rapid evolutions of the one, and the direct arrow-like straightness of flight of the other. With the exception of being birds, and covered with feathers, having wings, bills, and feet, one would suppose they had no kith nor kin together; which shows the wisdom of discarding all hard and fast lines of grouping birds into families, and the propriety of describing each species individually in the varied, yet perfect, group and order of Nature.

This dwarf-like, but splendidly dressed, little bird (the kingfisher) is a native of Britain, living all the year with us; unlike all the others in this group, which are migrants. It is an inhabitant of the lakes and rivers, rivulets, ponds, and burns throughout Britain, and consequently found in all the rivulets about St Andrews. From the trout-frequented Kenley on the east, to the salmon-stocked Eden on the west, with all the minnow and stickleback-filled rivulets between, and wherever there are fish and aquatic insects to live upon, they go where their food is—a safe rule in Nature—and followed by every creature that can move. Its large head, long, dagger-like bill, short tail, small legs, and emerald plumage distinguish it from all our indigenous birds, for, while the bill is 1½ inch long, the tarsi are not half an inch in length. It prefers clear streams (where minnows abound), whose banks are margined with willows and bushes. It perches upon an overhanging bough or stump of a tree, or a stone, from which it watches its prey; some pool swarming with minnow, which sport amongst the roots in search of *their* food, not knowing that they are keenly eyed to contribute their *own* bodies to carry on the first law of life. See, it stoops, then down it plunges head foremost, rises, and sweeps off in a curve, wheels round, and returns to its post with the never-failing minnow in its bill, which it strikes against its perch, kills and swallows, head first, then assumes its former attitude. If it sees a butterfly or aquatic insect it darts, captures, and repeats the process. Sometimes it hovers like a kestrel, and when the fish is near the surface, plunges in and comes up with it in its bill. It has been watched, and always caught its prey, the compact plumage, long bill, and tapering head making it an expert and deadly fisher. It is a true plunger, and as unerring as the gannet or tern. Its general flight is like an arrow, direct and very rapid, sustained by quick beats of its wings. It flies straight and horizontal near the surface of the water, the short, broad wings enabling it to fly with great speed—a long wing not being so well adapted for rapid beats as a short one, for the short-winged guillemot can outstrip the gull. It is a shy, solitary bird, and, unless paired, two are seldom seen together. It shuns other birds, yet does not shun the dwellings of man, as its nest is sometimes found near houses and mills. I have seen it in the Kinness Burn, close to the shore-bridge, and on the hull of an old sloop in the upper harbour. In the spring of 1891 a pair frequented this burn close to the bridge, evidently to form their nest into the bank amongst the roots of the elm trees, the bank being scooped out by the tide and spates; but as an embankment was formed in March and April to protect the trees, they flitted a mile up the burn, and had their nest near the plashmill. I have seen them on the Kenley, the Cameron, the Kinaldy, and all our burns in the district, but they are not common. The river Eden, up at Dairsie, and Dura Den are favourite resorts. It will sit for half an hour on an old stump or a stone watching for prey. It usually selects a range or beat of 300 or 400 yards, which it traverses up and down the stream, rarely flying beyond it, even when disturbed—so that two people, aware of this habit, might easily shoot it by one waiting at each end till within gunshot.

A man killed one with a potato in winter while it was sitting on a bush at Eden; and I have a fine male in my collection which was killed by a stone, in the autumn of 1880, at the "Doo Craig," near the Golf Clubhouse. Another was shot on a Sabbath day up the Moutray Burn by a man who was working at a farm close by; having his boat and gun up the burn he could not resist the inborn temptation of killing it. They make their nest early, and generally in May, lay from five to seven pure white glossy eggs, nearly round, $\frac{11}{12}$ by $\frac{9}{12}$ of an inch. Like the sand-martins, they dig out the hole which forms their nest—both birds helping, for which their long bills are much better suited than the martin's; hence they need not appropriate the old hole of a water rat, as said by some authors, especially as the rat is a deadly enemy to their young.

The hole is from 2 to 4 feet into the bank, sometimes 5 or 6 feet, and from 3 to 8 inches in diameter, enlarged as they go in to give the birds room to turn, and always sloping up to allow the offensive matter to run out. The entrance is easily known from a rat's hole by its being pear-shaped instead of round, and the under side grooved out by the long toes of the bird on entering; as the under side of a sand-martin's is flat below (by the short legs and breast of that bird) and round above.

One distinctive peculiarity in the foot of the kingfisher is the outer and middle toes are joined for two-thirds of their extent, having two claws, as it were, on one toe—one of the best examples of the wide-mouthed and flat-footed birds of the second family of the *picariæ*. The nest is not always placed at the end of the hole like the sand-martin's. It is generally composed of small fish bones, somewhat like a mavis's in size, but shallower and friable by being chiefly composed of bones. Although a simple matter, there is nothing authors more disagree about than the nest of the kingfisher. While some say it is entirely composed of dry grass, roots, and feathers, others (Montagu for instance) say it is entirely composed of fish bones, mixed with earth — these bones being "the castings of the parent birds, and not of the young, for he found them before they had eggs, and he believed both went to that spot for no other purpose than to eject this matter for some time before the female begins to lay, and that they dry it by the heat of their bodies, as they are known to continue in the hole for hours long before they have eggs." But, like the martins, they probably breed in the hole. "*On this disgorged mass*," he says, "*the eggs are laid*. At first the hole is not fouled, but before the young fly it becomes fetid by the fœces of the brood, which is very watery and cannot be carried away by the old ones like most small birds; hence instinct has taught them to slope the hole up, so that the matter runs off, and may be seen on the outside." He "never saw the old birds with anything in their bills when they went in to feed their young, so he concludes they eject their stomach for that purpose." Mr Rennie, however, in his edition of Montagu's Dictionary, says:—"We have known one of these nests in the same hole for several summers, but, so far from the excuviæ of fish bones ejected being dried to form the nest, they are scattered about the hole from its entrance to its termination without the least order or working up with the earth, and all moist or fetid. That the eggs may be laid upon portion of these bones is probable, as the floor of the hole is so thickly strewed with them that no vacant spot is found, but they assuredly *are not by design built up into a nest*." So here we have two totally different statements. And as to never "seeing them with anything in their bills when they went to feed their young," a writer in the *Naturalist* says, that in June he "saw a kingfisher with a fish in its mouth flying near him until it entered a hole in the bank, the entrance to which was strewed with fish bones. On digging into the hole (which ran upwards, slanting for about 2 feet) he found a nest with seven young ones just hatched. The bottom of the nest was very thick, and mixed with small bones of the stickleback. Its structure (except the bones) was not unlike that of a mavis. It crumbled to pieces on being touched, so that no portion could be got worth preserving. Near the nest was another hole, having the appearance of the previous year's residence, the bones at the entrance being dry and crumbling. On opening the nest six eggs were found on the fragments of the structure." This agrees with my own observations. On May 2nd, 1890, a nest was dug out of the bank at Eden, above the "pouch," near Eden Grove, below Dairsie Mill. The nest was 3 feet 6 inches into the bank; it was dug out with a trowel. There were five young ones. The entrance was 3½ inches high by 2½ broad, shaped like a pear. It widened as it went in, and was 8 inches at the end, and scooped out like a saucer for holding the nest, which was composed of the bones of the stickleback or red minnow—all clean, short bones, from a quarter to half an inch long, and about as many as a breakfast cup would hold, and so loosely held together that the nest could not lift; the pink spikes of the stickleback easily seen amongst the small bluish-white bones of the minnows. There was no roots nor dried grass nor other materials, but the fish bones and the scooped-out sand, known to be formed long before the eggs were laid; and as the small bones could not well be gathered bit by bit, they were likely the castings or the pellets of the birds themselves, and, not unlikely, as Montagu says, "dried by the heat of the birds;" at least they were dry and clean, but with moist pellets around it. The nest was formed at the end of the hole, on the level, then sloped down to allow the effensive matter to run out, which was seen running down about 3 feet on the outside. The entrance was 6 feet up in the bank. There were about twenty sand martins' nests 2 feet above this. On passing along the bank the young ones were heard chirping like young starlings. They were taken out and counted, then replaced in the nest again. They were about ten days old, as the feathers were just beginning to appear, and seemed as if covered with a coat of mail.

On May 23rd, 1892, another nest was found, with four eggs, 8 feet up in the same bank, within three yards of the last one. The nest was similar, but no fœces seen on the outside, as there were no young birds to foul it. The hole of this nest was discovered a month before the eggs were taken. Sometimes as many as eight eggs have been got in a nest, and sometimes the nest got as far as 8 feet into a hole. In July, a nest was found in a bank, screened by the roots of a large beech tree in front of it. The entrance to the hole was 12 feet from the level of stream, and 2 feet 3 inches into the bank. There were six young ones. When ripe they sat at the mouth of the hole to be fed, like the sand-martins, and continued a long time in the nest before they flew. In another nest, in July, the two old birds were captured, along with four young ones. In both of these nests the floors were strewed with moist and fetid pellets of fish bones; the young ones sitting upon the sand, intermixed with a small quantity of fibrous roots, surrounded by pellets of fish bones. On entering its nest the kingfisher makes a direct shoot into the hole from a bough on the other side of the stream; but sometimes they have their nest away from water. While workmen were digging the foundations of a house, a considerable distance from water, they came upon a nest with eggs, built in the gravelly side of a hole from which the roots of a tree had been taken. They will sometimes build in the banks of a pond within 20 yards of a farmhouse, close to byres, piggeries, and all the bustle of a farm-yard. Although it remains with us all year, it is like the robin, a local migrant; shifts to certain localities in spring to carry on Nature's law of life and love. They leave the larger streams in autumn and go to the brooks, as robins and tits in winter leave the woods and draw towards the dwellings of man. Sometimes on wing it emits a shrill note, but it has no song. It feeds on small fishes, leeches, and aquatic insects. It swallows the fishes entire, but, like the owl, disgorges the indigestible parts by the mouth in pellets; hence the materials for their nests. It was the halcyon of the ancients, and was worshipped by the Druids, and "halcyon days" were so-called from the fable that its nest was made of fish bones by sea fairies to allay storms, and that while it sat on its eggs the sea was as still as a pond. Hence with us "Our Halcyon Days" means peace and tranquillity. But, like all the objects of ancient worship, many fables regarding this bird, besides hushing the winds and stilling the sea while incubating, were wrapped up in the swaddling clouds of superstition. Even wise Shakespeare alludes to the popular notion that if the skin of a kingfisher was hung up by a thread the bill would point to the direction from whence the wind blew. He says—

"They turn their *halcyon beaks*
With every gale, and vary of their masters,
As knowing nought, like dogs, but following."

And, in King Henry VI., he makes Joan of Arc say to the Dauphin of France—

"This night the siege assuredly I'll raise;
Expect Saint Martin's summer, *halcyon days*,
Since I have entered into these wars."

Aristotle was the chief authority of the ancient legend, that the sea was calm while the kingfishers built their nests in winter. He says that "birds generally pair in spring and summer, *except the halcyon*, which hatches its young about the time of the winter solstice." And, after Tennyson wrote—

> "When rosy plumelets tuft the larch,
> And rarely pipes the mountain thrush,
> Or underneath the barren bush,
> Flits by the sea-blue bird of March."

The critics wondered what bird he meant. Some said it was the blue tit, some the kingfisher; and as both are non-migratory, they were the more puzzled by the "flitting of the sea-blue bird." The question was only settled by the poet himself saying he meant the kingfisher, as it abounded in the fenland in the month of March. It is well named the king of fishers, for, besides its natural adaptation for fishing, it is dressed as becomes royalty, having, as it were, a glittering crown of dark green, spotted with light blue on its head, and a lovely mantle of bright blue shining upon its back.

The length of this dwarf-like but beautiful bird to the end of its stunted tail (which is only 2 inches long) is 7¼ inches; extent of wings, 10¼ inches. The head and neck are bright green, each feather of the crown having a cross-bar of light blue near the end. The back, rump, and tail coverts are glossy light blue; the throat yellowish white, and the rest of the lower parts of a rich yellowish red. The tarsi and toes, orange red; the iris, hazel. The female is similar, only less richly attired and smaller. The older the bird the brighter is the green on the head, the deeper the blue on the back, and the richer the red on the breast. The wings are short, but broad; the secondary quills very long for the size of the bird. There are twenty-five quills, and all rounded, the tail having twelve narrow feathers. The young have the upper parts of a deep green; the lower, yellowish red; bill, black; iris, brown. As a rule, when the brilliant plumage of any bird shows itself before the first moulting, the adult male and female are alike, as in the kingfisher, starling, and magpie; while, as in the mallard, the young males are like the old females until the moulting shows the green on the head and neck of the adult male. The kingfisher is the only one of the family found in Britain—I may say the only one in Europe.

TRIBE II.

DENTIROSTRES.

FAMILY I. TODIDÆ.

The second group of the Insessores is designated the *Dentirostres*, by Cuvier (which means notched or tooth-billed), the first family of which is called *Todidæ*—the *genus Musicapa* of Linnæus.

Genus I. Musicapa (fly-catchers). Linn.

The generic characters of the fly-catchers are—bill moderate length, the base set with long, stiff bristles; the upper mandible having a small notch near the top. The legs are small and slender; toes long and ill adapted for walking or leaping; but as they chiefly reside in woods and gardens, amongst the foliage of which they find their insect food on the wing, this partial defect is of less consequence, for they will take their stand on a twig or the stump of a tree or post, from whence they catch the flies, and return to the same perch, scarcely ever touching the ground, but, like an old tollman, make every passing fly pay toll with its life. The wings are of moderate length, broad; of eighteen quills; the tail rather long, of twelve feathers. The general form of the body is slender. They are confined to Europe. Two species occur in Britain, and are both sparsely found around St Andrews. They are summer visitants; notch-billed insect feeders.

THE SPOTTED FLY-CATCHER.

(Musicapa Grisola.) Linn.

This bird is about the size of the meadow pipit, which it resembles. The general colour of the upper parts is light brownish grey; the head spotted with brown; the sides, light reddish brown; the lower parts, greyish white; the bill, black; the under side of the lower mandible, flesh colour; the feet, brownish black; and the iris, dusky. Length to end of tail, $6\frac{2}{12}$ inches; extent of wings, $10\frac{1}{4}$ inches. The female is less, but of the same colour.

This is one of our latest summer visitors, seldom coming before the latter end of May, when the trees are in complete foliage and the insects (on which it feeds) in full play. Although it catches its prey on the wing with great dexterity, it does not, like the swallows, catch them by constant flying, but by short sallies from its perch. It is distributed throughout Britain. It frequents woods, plantations, and orchards. Like all insect catchers its flight is easy and rapid, but in pursuit of its prey seldom flies far. It selects a twig, from which it sallies and returns. Its food consists chiefly of the dipterous order of insects, although it has been accused of feeding on cherries and bees—wrongfully I think, and mistaken for the greater petty chaps. For this, however, it is sometimes called "cherry-chopper" and "bee-bird," but I never saw it thus engaged, and believe it to be what its name implies—a consistent fly-catcher.

I have seen it catching flies. It darts like an arrow from its perch, and usually catches them with a snapping sound of its bill. Sometimes it ascends or drops on them with great rapidity, or hovers with fluttering wings above them like a kestrel over a mouse, or a tern above a sand eel. Like the swallows, it comes to us in full plumage, having moulted in warmer climes before coming; but before it leaves the feathers become abraided and the brown spots on the head more distinct.

It builds its nest in a hole of a wall or fork of a tree, but generally on a branch of a fruit tree trained against the wall; sometimes on beams in outhouses. It is small and compact; $4\frac{1}{2}$ inches in diameter and $2\frac{1}{4}$ inches inside. If against a wall part of the outer frame is awanting, but the inside is perfect. The outside is composed of roots and dried grass and moss; the inside lined with hair and feathers. The eggs are four or five, and vary much in colour—generally bluish white, something like the whin-sparrow's, but less; sometimes faintly spotted with pale brown. Are very like the redstart's. It is a late breeder. It has been observed to begin building its nest on the 22nd of June, and complete it in a day and a half. Mr Weir, of Durham, says:—"A pair nestled in his garden for twelve successive years upon the lowest branch of one of the wall trees. At seven o'clock on Thursday morning, the 22nd of

June, he saw them begin to build. Early on Friday afternoon it was finished. On Thursday, the 27th, the female began to sit upon four eggs, and on the 24th of July the young were ripe." Then he tells us that he got up in the morning and saw them begin to feed their young, and watched them from twenty-five minutes before four o'clock in the morning till ten minutes before nine at night, and minutely enumerates the number of times they fed them from hour to hour—no fewer than 537 times in the day. So one does not know whether most to admire the assiduity of the bird or the patience of its observer; for he says:—

> "At twenty-five minutes before four o'clock they commenced feeding their young. From that time until four o'clock they fed them ten times; from four to five, sixteen times; from five to six, twenty-eight times; from six to seven, twenty-nine times; from seven to eight, thirty-four times; from eight to nine, forty times; from nine to ten, thirty-nine times; from ten to eleven, thirty-five times; from eleven to twelve, forty-four times; from twelve to one, forty times; from one to two, thirty-three times; from two to three, forty-eight times; from three to four, thirty-seven times; from four to five, thirty-eight times; from five to six twenty-one times; from six to seven, sixteen times; from seven to eight, twenty times; and from eight to ten minutes before nine o'clock they fed them nine times. They thus fed their young in the course of the day 537 times. Their motions were so uncommonly rapid that I could not for a single moment keep my eye off the nest."

Just fancy this! How could patient Mr Weir himself, like patience on a monument smiling at grief, get time to eat, or fulfil the uses of Nature for a whole day? He tells us that "before they fed them they alighted upon a tree and looked round about them;" and that "by short jerks they usually caught the winged insects," and "beat off most vigorously all kinds of small birds that approached their nest." He also says—"It is impossible to give the number of flies consumed by their brood, as they sometimes brought one large fly; at other times two, three, four, or five, and even more flies of different sizes."

Mr White of Selborne says:—

> "The fly-catcher is of all our summer birds the most mute and the most familiar; it also appears the last of any. It builds in a vine or a sweet-briar, against the wall of a house, or in the hole of a wall, or on the end of a beam or plate, and often close to the post of a door where people are going in and out all day long. This bird does not make the least pretension to song, but uses a little inward wailing note when it thinks its young in danger from cats or other annoyances. It breeds but once; and retires early."

He says—

> "A pair one year inadvertently placed their nest on a naked bough. But a hot season coming on before the brood was half fledged, the reflection of

the wall must inevitably have destroyed the young had not the parent birds hovered over the nest all the hotter hours, while, with wings expanded and mouths gaping for breath, they screened off the heat from their suffering offspring."

I have got their nests and eggs in the orchards at the south side of the city, on the wall trees, 3 feet and 4 feet from the ground; but they are not common here, and not easily distinguished from several other small birds; hence are unobserved unless purposely watched. On the 1st of July 1878, when lying on the grass under the shade of the trees at Gilston, nine miles from St Andrews, where I was carrying on some joiner work, I saw a spotted fly-catcher repeatedly flying from and alighting on a twig of a beech tree busy catching flies. I lay and watched it for half an hour. It chased a small butterfly several times before it caught it, wheeling and chasing like a hawk after a bird. It was very active; caught its prey, and returned with it to its perch. Being interested, I stepped over to the place, and on looking up I observed some speckled objects about 8 feet up on the branch of a large beech tree. I went close, and peering up saw five young birds huddled together on the outside of their nest, which was built above the stump of a cut branch. The tree was close to the cart road, where the masons were working in a shed, and carts with stones, lime, &c., passing constantly. While watching them, two apprentices came up in the plumber's cart, and, without seeing me, pointed up to the nest, then backed the cart to the tree. One of them stood up in the cart and caught one of the birds. Stepping forward, I asked if he was going to harry them? He said, "Aye, for they were queer birds, and nane o' the masons who found oot the nest a while syne kent what kind they were, as they had never seen any birds like them—being greyish-brown on the back like a robin, but thinner, and without the red breast." I told him they were fly-catchers, and of no use for singing, and asked him to leave them alone. On putting back the young birds at my request three of the rest flew off and alighted amongst the leaves of another large beech tree close by. He then threw the one he held after them, which also reached the three, and then took the remaining one (the most unfledged of the lot) and threw it up also; but though it reached the tree, it fell down again. He took out the nest, which was composed of moss outside, very like the colour of the trunk of the tree on which it was built in the "breck." It was lap-sided, as the trunk formed the side;

but the inside of the nest was complete, and lined with hairs. One of the hairs which I measured was 26½ inches long, and had once adorned the tail of a horse. I carefully inspected the nest and the young bird, and got my obliging young friend to replace the nest with the young bird in it, as it could not fly, and the others might return. The colour of the young birds was much lighter than the old ones, and much more spotted over the whole body, head and all; and as they clustered on the stump of the branch of that beech tree they also were so like the colour of the tree they could hardly be observed until quite close to them.

Having walked from St Andrews to Gilston, I intended to walk back again, but scribbling in my note-book, I took a wrong turn in the road, and suddenly found myself looking over the Firth of Forth, with the Bass Rock looming in the distance. So I had to retrace my steps and trudge back the way I came, reaching home very tired indeed—long past the wee short hour ayont the twal—partly through those fly-catchers, thinking on birds, and searching for birds' nests.

On the 29th of August 1887, a fine specimen (which I have stuffed) was caught in one of our fishing boats about sixty miles to the east of the Bell Rock. It had likely been driven out to sea by a gale. They leave us about the end of September, like the swallows—the scarcity of insects no doubt regulating their departure; and yet to-day, the 30th September—a cold, wet, rainy day, at gloaming, when fair, and the street lamps lighted, I saw a lot of wee midges in the garden, dancing up and down—like the witches in old Alloway Kirk—enjoying themselves. These must be hardy insects, as I have seen them sporting in the dead of winter.

THE PIED FLY-CATCHER.

(Muscicapa Luctuosa.) Temn.

This is the only other fly-catcher that visits Britain; I never saw it about St Andrews. It is smaller than the other—to end of tail, 5¼ inches; and 8 inches in extent of wings. The general colour of the upper parts is greyish black, darker than the preceding, with a distinct white patch on the forehead, from which, with the lighter rump and throat, it takes its name of pied; the bill, feet, and claws are black; the iris, hazel. It has all the characteristics of the preceding—nidification, time of arriving and leaving, &c. For although I never saw it near St Andrews, it is scattered about and plentiful in Cumberland and Westmoreland, generally near some old oak plantations and water. It has an affinity to the redstart more than to the spotted fly-catcher. They arrive about the same time, frequent the same places, and often contend for the same hole for their nest. A writer in the "Magazine of Natural History" says:—"The migration of this species appears to be chiefly confined to the northern Counties of England, and rarely seen in the south, although occasionally met with in Norfolk, Suffolk, Middlesex, Surrey, and Dorsetshire. In some parts of Westmoreland it is very plentiful. The males generally arrive about the middle of April; the females ten or fifteen days later. They begin nidification early in May; the young hatched the first or second week in June. We have invariably got their nests in the hole of a tree and in the stump of a felled tree. The nest is like those of the greater petty-chaps, blackcap, and white-throat, slightly put together—composed of small roots and dried grass, lined with a little hair, and generally a few decayed leaves on the outside, but entirely without moss. Their eggs vary in number—from five to seven; colour, pale green—and so much like those of the redstart that it is often difficult to distinguish them; but are rounder. Soon after their arrival the males often sit for a long time on the decayed branch of a tree contantly repeating their short, little varied song, every now and then interrupted by the pursuit of some passing insect. Their habits are so like those of the redstart that a dead female redstart was found in the nest of a pied fly-catcher containing two eggs. Another time when both these species had nests within a few inches of each other, upon the redstart's nest being removed, the female redstart took forcible possession of the fly-catcher's nest, incubated the eggs, and brought up the young;" but sometimes they are both driven out of their nests by a swarm of bees taking possession of the hole.

The genera of birds might, with few exceptions, be known by the colour of the eggs; but those of the two fly-catchers are one of those exceptions, for they sometimes differ so much in colour as if the two species had no affinity—the one being blue, like the hedge sparrow's; the other pink, spotted with red, like a robin's. But in catching flies they are at one in activity and dexterity. How different from the more clumsy attempts of those unsuited by nature to catch insects; for on coming along South Street, on May 24th, 1888 (the Queen's Birthday), I saw a female sparrow chasing a pretty large moth, but it was fairly baffled, and had to give up the chase.

The next family which forms one of the typical divisions of the *Incessores*, or Perchers, is the *Laniadæ;* but as there is only one of five sub-families (vizt., the *Laniana*, or Shrikes) found in Britain, I need not mention the other four.

FAMILY II.

(The Genus Lanius.) Linn.

SHRIKES, OR BUTCHER BIRDS.

The generic features of this sub-family (which represent the tribe in Britain) are—bill thick and strong; upper mandible hooked at the point and strongly toothed, something like a hawk's, to whom in their rapacious habits they bear resemblance; claws arched; legs and wings of moderate length. The general form is compact—tail long. Their food chiefly consists of insects, but sometimes of small birds and animals, which they transfix on a thorn and tear in pieces with their bill; hence their name of butcher birds. They do the same with the larger insects. Some of them, like the fly-catchers and some other birds, have a partial change of plumage—chiefly the males in spring—as well as the usual moult in autumn. Three species are found in Britain, but none remain all the year. These are the great cinereous shrike, the woodchat shrike, and the red-backed shrike.

GREAT CINEREOUS, OR GREY SHRIKE.

(Lanius Excubitor.) Linn.

As none of the butcher birds are found near St Andrews, to my knowledge, I shall briefly describe them. This is the largest of the three species that visit Britain. It is about the size of a mavis, but has a larger head and stronger bill. The general colour is ash-grey on the upper parts; the lower, white, with a broad black band on the side of the head. Wing coverts also black; irides, blackish-brown; the tail long and black. The female similar, but the head and neck darker, tinged with brown, the band on the head blackish-brown, and the breast marked with grey lines. The length of the male to end of tail is 10½ inches, and 14¾ inches in extent of wings; tail, 5¼ inches long. Although not gaudily coloured, it is one of the most beautiful of the genus. Woods with hedges are its favourite haunts. It builds its pretty large nest (like a missel thrush's) in high hedges, thick bushes, and trees. It is composed of roots, grasses, moss, and wool, lined with finer roots and dry grass. The eggs are like the missel thrush's; usually five, sometimes six or seven. They are pinkish-white, with reddish-brown and greyish-purple spots at the larger end. It feeds on insects, such as beetles, cockchafers, &c., small birds and small quadrupeds, which it kills by blows on the head with its strong bill; it then transfixes upon a thorn or jams in the fork of a branch, roughly plucks, tears to pieces, and swallows. Sometimes it stands on it like a hawk and tears it up, ejecting afterwards in pellets the undigested parts. After killing a bird, mouse, or frog it hovers above a hedge with it in its bill, selecting a thorn to fix it upon. Even when confined in a cage it evinces the same propensity for fixing its prey; hence very aptly named the "*butcher bird*," and Tennyson most aptly says—

> "The May fly is torn by the swallow, the sparrow is *speared by the shrike*,
> And the whole little wood where I sit is a world of plunder and prey."

If there is no thorn or sharp-pointed stick in the cage it fastens it in the wires before eating. As many as the remains of three mice and three frogs have been found transfixed on one large thorn bush.

Like the fly-catchers or kingfisher, it selects a twig to watch for prey, and from its habit of remaining long perched for that purpose has received its name of exubitor, or the sentinel. It has been shot at Elgin, and a mile north from Dundee, and seen now and then in nearly all parts of the country; but it is very solitary, and seldom more than one seen at a time. It is more a winter than a summer migrant. A writer in the press says:—

> "Three grey shrikes were shot in the vicinity of Biggar in November—two males and one female; another was shot at Redcastle, Ross-shire, about the same time, and the other day I saw one in this locality (Stobo). It is therefore probable that a regular migration to our country, instead of a few stragglers, has this winter taken place; in like manner as the cross-bills were seen throughout the country in considerable numbers in 1873-4. The shrike was brought within my view in the following way:—A large flock of chaffinches had been feeding on the ground, suddenly rose, and by the chorus of alarm-notes which they uttered, gave intimation, as I thought, that a hawk was in the neighbourhood. But on looking around, no hawk was seen. At length my attention was drawn to a bird perched on the top of a tall plane tree, about a hundred yards off. At that distance it might have passed for a missel thrush, except that its body was much more slender. In a minute or two it took to flight, and had not gone far when it came into close quarters with a chaffinch flying in an opposite direction, which it at once darted after and pursued eagerly, but without avail. Resuming its course, it came past within eighty yards of me, and I was enabled fully to identify it as the grey shrike. It then made a long swoop of about a hundred yards away towards a group of dark silver firs, and was lost to view. Its flight is very rapid, produced by quick strokes of the wings, not unlike the movement of the starling, only the wings are not raised so much, so that, at a side view, the shape of the bird is well seen in its flight. Comparing the three specimens which were shot at Biggar, the female—contrary to the usual rule in birds of prey—showed slightly less than the males. A mouse which the former had killed was found transfixed in a singular manner on a thorn, and the stomachs of the other two contained the fur and bones of mice."

Although found at all times of the year in Britain, its time of migration is very irregular; nor is it known to breed with us. It has no regular song, but can imitate the notes of such birds as the stonechat, for which it has been called on the Continent the "mocking thrush." They are very courageous in defence of their nest, and will drive off crows, hawks, and birds ten times their own size; and in this respect remind me of the daring of the missel thrush.

The Red-Backed Shrike.

(Lanius Collurio.) Linn.

Although this bird does not visit Fife, it is pretty common about London and Bristol and the Southern Counties of England, especially on the extensive downs of Sussex. Like the fly-catchers, it is a regular summer visitor—arrives in spring, breeds and leaves in autumn. In habits it is similar to the preceding. The nest, which is bulky and slovenly put together, is composed of twigs, roots, aud moss, lined with wool and hair. It is fully 6 inches over all, and about 3 inches in diameter inside. It lays five or six eggs, pinkish-white, with brownish spots in zones, chiefly at the larger end, and are amongst the most beautiful of our British birds' eggs. It breeds in thorn bushes or furze, sometimes 10 or 12 feet up in a thorn tree. It frequents the margins of woods, thickets, tall hedges, and furze-covered downs. Its food is chiefly insects of the coleopterous order, which it transfixes upon thorns, eating the soft parts and leaving the thorax; but it has been seen to feed on small birds. It also perches on the top of a twig and watches for its prey. Its ordinary note is a sparrow-like chirp, but it has a pleasing little song. The cuckoo sometimes lays in the nest of this bird, and a pair of them have been seen feeding a young cuckoo perched upon an oak. When hovering above a cockchafer it is like a miniature kestrel falcon. Like the preceding, it is often mobbed by small birds, although their nests have been found close together, where the small birds reared their young with impunity; but such are the anomalies of Nature. It is about the size of a corn bunting, for which it might be taken. It is 7¼ inches to end of tail, and 12¼ inches in extent of wings. The colour of the head and nape of the neck is ash grey; throat, white; breast, belly, and sides, rose-red; back and wing-coverts, reddish-brown; the middle feathers of the tail black; the rest white at the base; legs and feet, black; irides, chestnut. It has also the distinctive black patch on the side of the head. The female at first differs from the male in having the cheeks, breast, and sides transversly barred with brown lines, and having the head and all the upper parts of the plumage chestnut, but in time becomes the same as the male.

THE WOOD-CHAT, OR WOOD SHRIKE.

(Lanius Rufus.) Lath.

This is the rarest of the three British shrikes. In habits it is similar to the others, and about the size of the red-backed. The back of the head and neck are reddish-brown; lower part of the back, deep grey; rump and tail-coverts, white; throat and under plumage, white, tinged with yellow; back, black; scapulars, white, forming a distinct patch; wing-coverts, brownish-black. The outer feathers of the tail white, with a black bar upon the inner web; the next, black, having their base and tips white; the centre feathers black. It has also the distinctive black patch on the sides of the head, only the black runs round the crown, leaving a white band between the front of it and the bill. The female similar, only less distinctly marked. Unlike the others, it builds on trees instead of bushes—preferring the oak—and lays four or five eggs, richly coloured and spotted in zones. The eggs of the three shrikes form a beautiful and isolated group—as different from those of other birds as they are like each other.

FAMILY III.

MERULIDÆ, OR TURDUS. THE THRUSHES.

The affinity between the shrikes and the thrushes shows itself in the missel thrush, whose colour of eggs, partial tooth-bill, and rapacity, approaches nearer to the larger shrike; while the short-legged thrushes are more closely allied to the sub-family *laniana*. But, instead of the short, strong, toothed-bill that characterise the shrikes, those of the thrushes are longer and more slender, with the notch or tooth less prominent, but quite sufficient to take firm hold of food, such as worms, snails, fruit, and berries. Their legs and feet have a decided superiority over the *laniadæ*—being more muscular, and as well adapted for hopping on the ground as perching on trees.

The *merulidæ* is composed of five groups, but only three are represented in Britain—the *merulina*, or true thrushes; the *cinclus*, or dipper; and the *oriolana*, or oriole. Therefore, I shall describe the *merula* of Ray—the blackbird and mavis being the types. Some are migratory, and assemble in large flocks in winter, as the fieldfare and redwing. Their food consists of insects, worms, snails, berries, and fruit. I begin with the largest and boldest—the missel, or misseltoe thrush; sometimes called the throstle and storm-cock—a true native of Britain; and called the storm-cock, from singing very early in spring in stormy weather.

MISSELTOE, OR MISSEL THRUSH. THE THROSTLE.

(*Merula Viscivora*, OR TURDUS VISCIVORUS.)

> "And groves and gardens all the live-long day
> Rung with the birds' loud love-songs: over all
> One thrush was heard from morn till even-fall.
> . . . From yonder lofty poplar's topmost spray
> At earliest dawn his thrilling pipe was heard;
> And when the light of evening died away,
> That blithe and indefatigable bird
> Still his redundant song of joy and love preferred."
>
> —*Southey.*

This is the largest of its tribe, not only in Britain, but in Europe. Length to end of tail, 11½ inches; extent of wings, 19½ inches. It is similar in colour to the mavis—head and upper parts, light brown; wing-coverts, dark brown, margined with greyish white; lower parts, yellowish-white, each feather tipped with black; bill, blackish; irides, brown; legs, pale brown. It used to be rare about St Andrews. Fifty years ago, when I got my first missel thrush's nest in Stravithy Wood (now cut down, and near the present railway station), I thought from the colour of the eggs I had got a prize; now it is quite common, although not abundant, and found in most large gardens and policies about the city. The tall poplars in Abbey Park was a favourite nesting-place. It is one of our earliest breeders; and although it does not sing so sweetly as the mavis nor whistle so loud as the blackbird, it sometimes resembles both. It sings early in spring—even in winter; a sure sign that breeding is going on, for the one rules the other; but as it is rarer than the other two its song is often mistaken for theirs. It is generally named the throstle by our English poets, as the mavis is sometimes called the throstle by our Scottish ones; but Burns never mentions the word throstle. Tennyson says—

"Her song the lintwhite swelleth,
The clear-voiced *mavis* dwelleth,
The callow *throstle* lispeth.

. . . . . .
Where Claribel low lieth."

And, in his "Sir Launcelot and Queen Guenevere," he says—

"Sometimes the linnet piped his song,
Sometimes *the throstle whistled strong.*"

He also says—

"The lintwhite and the *throstle-cock*
Have voices sweet and clear."

And Wordsworth philosophically exclaims—

"Books! 'tis a dull and endless strife:
Come, hear the woodland linnet,
How sweet his music! on my life,
There's more of wisdom in it.

And hark! how the *blithe throstle sings!*
He, too, is no mean preacher;
Come forth into the light of things,
Let Nature be your teacher;
Come forth, and bring with you a heart
That watches and receives."

Nor do they confound the mavis with the throstle, for, as seen, Tennyson names them both as distinct birds in one verse.

Southey also says—

"The linnet from the budding grove,
Chirps her vernal song of love;
The copse *resounds the throstle's notes,*
On each wild gale sweet music floats;
And melody from every spray,
Welcomes in the Merry May."

And Shakespeare likens the volatile French Lord to it, for of one of her suitors Portia says—

"God made him, and therefore let him pass for a man;
He is every man in no man: *if a throstle sing* he falls
Straight a-capering, and will fight with his own shadow."

When serenading his mate on her eggs the male selects the highest branch of a tall tree; but it is a shy bird, preferring the outskirts of woods and pastures, where, like the blackbird and mavis, it feeds upon worms; but when pressed for its brood it will, like the shrike, prey upon young birds. When disturbed it gives an angry *churr*. Its nest is like a blackbird's, but more bulky and loosely constructed. It is made of twigs, roots, grass, leaves, moss, paper, or anything handy. The inside is roughly made of clay or mud, mixed with dry grass, and lined with finer grass. The cup is about 4½ inches by 2¾ inches deep. It is generally in the fork of a tree. The eggs are four or five, flesh coloured, with light brown and purple spots; liker the shrike's than any of the thrushes, and easily known from those of any other bird. These they defend against all harriers—including man—and only yield to superior power. Their chief enemies are the thieving magpie and the jackdaw. White of Selborne saw "several magpies storm the nest of a missel thrush in his garden, and though both thrushes defended their nest with great vigour and fought resolutely (numbers prevailed), the magpies tore the nest to pieces and swallowed the young alive." They usually lay early in April; but on the 11th of May 1855 I got a nest with four fresh eggs on a high poplar tree at Abbey Park. It was bulky and rudely constructed, as if done in a hurry, and composed of dry grass, roots, bits of paper, strings, &c. I took out three yards of lace and a lady's collar from the mass. This was their second nest, as the first was harried of its eggs by boys in April on an adjoining tree; hence in haste to build another, they had not been scrupulous about materials. On the 8th of June I went again to Abbey Park, as the gardener invited me to see several nests and eggs. He showed me a missel thrush's nest high up in the fork of a large poplar in the avenue; I saw the bird sitting. He got a ladder and set it against the tree quietly, as he wanted to destroy both bird and eggs. She raised her head, but sat close while he stealthily climbed up to the nest and thrust in his hand to catch her. She got away, but he broke one of the eggs in the attempt. She did not fly far, but loudly churred and screamed at him, and only needed the power to have torn him in pieces. She dashed down and struck him in the face, flew up screaming and churring, then, as if determined to save her eggs or die in the attempt, she flew at him again, still screaming, and struck him in the face repeatedly. I had no idea there was such daring and energy in the missel thrush; she actually forced him to desist from the robbery of her nest, and kept churring defiantly quite close to him on the same branch, daring him to raise his head, until, really afraid for his face, he cried down to me—

"By faith, I'm no sure aboot her. I dinna want her to come that way again;" then fairly beaten, he slunk down the tree. But, like a baffled craven, or a greedy gardener who wants to save a few over-ripe cherries, he vowed to destroy both bird and eggs, so he shot her next day. I got that faithful mother stuffed, and have her still. This was probably the same bird whose nest was twice harried in April and May; hence her determined effort to protect her eggs, and also for the eggs being smaller than any I had seen. But besides guarding their eggs, I have seen them dash at crows and chase them away from their young when flown and feeding in a field. I climbed up the tree and inspected the nest. There were four deep-sitten eggs and the broken one. It was 20 feet up in a fork of the tree, which was plastered with a layer of cow's dung to fix it. The other materials were built on the top of this, and not adhering to the tree, for when I removed the nest it came away wholly, leaving the most of the dung, in which a lot of centipedes and sclaters crawled thus high up, beneath the very nest of one of their deadly enemies. But such is nature—the strong preying upon the weak, sometimes sheltering them; and lordly man preying upon all—even upon himself—not knowing his own greatness, and at the same time his own brief littleness. I have seen missel thrushes sitting on the backs of sheep feeding on the "kidds" or parasites found amongst the fleece—the sheep coolly grazing, taking no heed of the time when as mutton they would be eaten themselves. But, as Hamlet says, "Thus runs the world away," that is, if it ever will or can run away from its own eternal "sphere of influence," as the British Government or zealous Christian missionaries might say.

This nest was composed of roots, dried grass, and sheep's wool in abundance, along with hay, twigs, straw, bits of paper, and rags, all compactly woven together, the inside lined with soft dry grass. It measured 4 inches by 2½ inches inside, and 8 inches over all by 4 inches deep. The gardener's mother-in-law told me that the lady's collar I got in the previous nest belonged to Abbey Park housemaid. It was a fine hand-wrought Vandyked one which she knitted and gave to the housemaid as a present. It was stolen off the green, and found woven in the missel thrush's nest as stated; but a bird was never suspected of the theft. Fourteen years before this, when Mr Robert Chambers (of *Edinburgh Journal* fame) and family lived in Abbey Park House, two pairs of knitted cuffs belonging to Mrs Chambers also disappeared from the bleaching-green in the same mysterious way. The lady was annoyed at the loss of her finely-knitted cuffs; the gardener's wife was more so, as she was the responsible person. The day after the disappearance of the last pair the gardener saw a bird fly off with a ribbon from the green. He watched it, saw the nest, climbed up, and, to his great satisfaction, found the two pairs of lost cuffs as well as the ribbon in a missel thrush's nest. His wife was very glad, as it cleared her honesty. Mrs Chambers was still more so, and prized her lost cuffs the more for their singular theft and recovery, and often told the incident.

To show what can be done in the way of natural history regarding birds' nests and eggs, after seven o'clock at night, in a garden and shrubbery in the old city, on passing through the low hedge between Dr Boyd's glebe (now a nursery), on the way to the garden: "There's a titmouse," said the gardener. "No," I replied, "that's a willow wren; and from the way she flew up I think her nest is here." On turning up the long grass under the hedge I knocked over a little loose branch, and three small dirty white eggs, with black spots, fell out of a deep, loosely-formed nest, flimsily constructed with dry grass, profusely lined inside with hair. "I never saw such eggs before," he said. "They are the white-throated warbler's or moffat wren's, commonly called the 'muffy-chauther'," I told him. After "further search," as the brethren of the mystic say when searching for the body of Hiram, King of Tyre, another small bird flew out amongst my feet, but although I saw the very place, it was not until a good deal of "further search" that I found her nest at the roots of the hedge, it was so artfully hidden by dried leaves, twigs, and grass. There were seven little eggs in it, white, tinged with pink, and speckled over with red spots. I waited to identify the birds. Both came and alighted on a poplar right above their nest; they were willow wrens. This nest was domed, like the kitty wren's, and all covered over with the brown leaves and grass, except the small hole to get in, and so like the colour of the roots amongst which it lay as absolutely to escape detection. Thus, I thought, do birds wisely hide their treasure by selecting materials to suit the colour in which they lie. We passed through the hedge, and just before entering the garden door a wee bird popped out of the ivy at the very side of it as if to tell me that its nest was there; like the blush on the cheek of modesty telling the secret it was so anxious to hide. But even here, so open and yet so close, it required close inspection to observe that domed nest, about three feet up from the ground, half hidden amongst the ivy leaves, and the rest so nicely matched with green moss as almost to defy detection. It was a kitty wren's, with eight deep-sitten eggs. On passing along one of the walks I observed a nest on the branch of an old apple tree. It was composed of dry grass and twigs the very colour of the branch, and but for the gardener I would not have detected it. It was so like in form and size to a green linnet's, that I was much surprised when I found it was a chaffinch's, with five eggs. It was so unlike the neat little nest of the chaffinch that I noted it on that account—as another proof of the deviations of unerring Nature. Amongst many other nests, I found a blue tit's with five eggs in a hole in the garden wall, and got two jackdaw's high up in holes of the poplar trees, besides a starling's, with five deep-sitten eggs, in the stump of a rotten branch of an ash. All these nests got after half-past seven at night, in the grey old city, shows what was done in 1855. I have wandered miles and spent days in the country without seeing so much.

On the 26th of April 1856 I got a missel thrush's nest, with three eggs, on the horizontal branch of an old, stunted, bent apple tree, only five feet from the ground, in an orchard at the Kinness Burn. I went back on the 5th of May ; the eggs were gone. The gardener said they were taken by the crows or jackdaws. He saw the thrushes drive them away repeatedly, but the nest was so openly placed as if to invite or defy destruction. The crows and daws took up the challenge and won. As already said, the one great principle of life is the strong living on the weak, for I have seen missel thrushes preying on the young of weaker birds, have seen jackdaws killing and eating young sparrows, have seen bigger flies sucking the bodies of smaller ones, and have seen even pious clergymen robbing the poor of their schools ; but although Nature has certain well-defined rapacious servants in all classes of creation, including man, whose instinctive and peculiar mission is to plunder, yet very many species plunder or kill at second-hand when they get the chance, and their own needs require it ; for reproduction of species and individual food—or love and hunger—are the two great principles which rule the world. On May 10th, 1888, I saw a missel thrush's nest stuck right upon the top of a cut branch of a poplar tree, at the very entrance at Abbey Park gate, quite close by which the Burgh School children pass. It was as much exposed as if stuck upon a lamp-post, and yet it was not easily observed, as if instinct had warned them to have no projecting roots or straws; but as nothing in the shape of a nest can escape the Argus eye of the bird-nesting schoolboy, the next time I passed the nest was gone. When in a wood, on the 23rd of June 1889, I saw a young missel thrush lying dead at the foot of a Scotch fir tree. On looking, I saw the nest in the breek about 12 feet up. It was composed of dry grass and moss—so like the colour of the tree as made it difficult to be seen. I climbed up: there were only three raw young ones in the nest. The one below told of a scuffle with magpies. The wee things gaped for food. Alas! I thought, where innocence or "ignorance is bliss, 'tis folly to be wise." I went back eight days after this. They were nearly ripe; but instead of stretching up their heads and gaping for food, they crouched down as close as possible, for, with more sense, they apprehended danger—a characteristic with all young birds. When very young and blind they wriggle senseless; a little older they thrust up their long necks and gape for food. As they get ripe they crouch down to escape detection, and when fully ripe fly out and scramble off if looked at. From my notes written in 1855, I see that the old city has made considerable progress in house-building between the old Castle and the Witch Lake Brae; for what is now a stretch of imposing mansions and gardens was then all under the plough. When making my collection of birds and eggs I find that "on December 13th, 1855, I shot a fine female missel thrush in that park on the Scaurs near the old Castle. It was feeding, along with several others, amongst the barley stubble." Also, "On the 3rd of February 1856 I observed five missel thrushes amongst a dozen of mavises, feeding amongst the turnips near the Witch Lake," which shows that, like the fieldfare and redwing, the missel thrush congregates in small flocks during winter. When hard pressed it feeds on hips, haws, snails, and anything it can find, and being a hardy bird, stands the test of a severe winter better than the rest of the thrushes. It gets its name of missel, or misseltoe thrush, from feeding on the berries of the mistletoe (about the time when young ladies are being kissed beneath them at Christmas). It also feeds on the berries of the ivy in spring, these being ripe in March and April, but it is not so destructive to fruit in gardens as other thrushes in summer. Therefore it is wrongfully persecuted by gardeners, which is a pity, as it loves to build near them, as if seeking shelter from its natural enemy, the magpie.

The Fieldfare, or Chestnut-Backed Thrush.

(*Merula Pilaris, or Turdus Pilaris*). *Linn.*

The fieldfare comes to us for food,
But not to rear her callow brood,
For, when the fields are clothed with snow,
She has the look of feathered woe.

It is a polar migrant, arriving in November, sometimes along with the redwing. It is amongst the latest of our winter visitors, and only comes when ice and snow drive it from Scandinavia. As it is late in coming, it is late in leaving—about the end of April. It does not breed with us, although many of our native thrushes are sitting on eggs before it leaves. It is smaller than the missel thrush, 10½ inches long, and 17½ in extent of wings. It is similar in colour, except the back and wing coverts, which are chestnut. The bill is orange at the base, tip black, legs and feet dark brown, iris brown. Like the rest of the thrushes it feeds on slugs, snails, insects, and worms, frequenting pastures, meadows, and all fields for its food or *fare*, from which it derives its name of fieldfare, or field flyer—in my young days called the feltyfare. It is a genuine *field*-farer, as the mouse is a *barn*-farer, and the rat a *sewer*-farer. It even roosts on the fields as well as low bushes. White, of Selborne, says—

> "Though it sits on trees in the daytime, and procures the greatest part of its food from white thorn hedges, yea, moreover, builds on very high trees, yet always appears with us to roost on the ground. They come in flocks just before it is dark, and settle and nestle among the heath on our forest. And, besides, the larkers in dragging their nets by night frequently catch them in the wheat stubbles, while the bat-fowlers, who take many redwings in the hedges, never entangle any fieldfares. Why these birds in the matter of roosting should differ from all their congeners, and from themselves by day, is a fact for which I am unable to account."

When the fields are covered with snow it resorts to hedges and plantations to feed on haws, doghips, yew-tree berries, and *arum* roots, or what it can get to sustain life. In severe winters, when John Frost and his old friend Snow had possession of the fields, I have been grieved to see them amongst the rocks and on the sea-shore scarcely able to fly, woefully searching for food, while lordly Humanity—in the shape of fisher boys and men, taking advantage of starvation—through an innate desire to hunt, were chasing and killing them—as gentlemen, aye, and even ladies—through the same *manly* prerogative, hunt the fox and timid hare for what is called sport, when, as Wordsworth says—

> "The redbreast, ruffled up by winter's cold
> Into a 'feathered bunch,'
> *And fieldfares pensive flock.*"

In crossing the North Sea it sometimes gives more substantial sport to the fishes, for, when our fishing boats were at sea, a fieldfare alighted, but, as the fishermen tried to catch it, it fell into the sea, and, as it lay helpless, a large cod pulled away the tail in trying to swallow the bird. Not to be baffled the voracious fish sprang out of the water, and, diving down, seized the poor fieldfare, and sank to digest it at leisure. I have seen a full-fledged waterhen in the stomach of a cod, preserved. But although helpless in prolonged snow storms and on the sea, in open winters it is not easily got, as the following notes when gathering my collection will show. "On the 26th of January 1856 I went with my gun for some fieldfares. I saw several flocks of them in a grass park near Eden; they hopped and ran fast, and would not allow me within shot. They gave a harsh scream, flew about 400 yards, wheeled away four times that distance, hovered, then alighted amongst turnips. I followed other flocks without success. In going through the turnip field I shot a partridge, but could not get a fieldfare." And "on the 12th February I saw a flock of about a hundred fieldfares perched on the ash and beech trees at Balmungo. They flew when they saw me, uttering their usual harsh screams, wheeled above my head, then flew in the direction of Priormuir. Some of our thrushes have eggs already, and on one of the ash trees I got a chaffinch's nest with eggs—the best proof of a mild season." Sometimes the swallows arrive before the fieldfares leave, a strange mingling of summer and winter migrants. After they leave in the end of April they seek their native wilds, and begin the duties of reproduction, to sing, and build their nests, when the swallows and other summer migrants begin to breed with us, and have eggs when our indigenous thrushes have young. As they are so like our own thrushes in food and habits, it is strange that none remain to breed with us; but I recollect when the lapwing as regularly left us, many of which now remain all year. So both fieldfares and redwings may yet be found breeding with us in summer. White also says—

> "It has always been matter of wonder to me that fieldfares, which are so congenerous to thrushes and blackbirds, should never breed in England, but that they should not think even the Highlands of Scotland cold and northerly and sequestered enough is still more strange and wonderful."

Yarrell mentions instances of their breeding in Scotland, but I know of none in Fife (about the nearest point from Norway); other supposed instances turned out to be missel thrushes. Mr Hewitson, Mr Hancock, and others, went expressly to Norway to find out their breeding-places. Writing on the 14th of May, Mr Hewitson says—

> "We had all day rambled through those almost impassable forests, and after climbing many a tree to old nests, we were returning weary and disappointed, when suddenly the silence was broken by the loud, harsh cries of a colony of fieldfares, which, alarmed at our approach, were anxiously watching their new-made nests. We forgot our toils in the delight of the discovery, and were surprised to find them breeding in society." "Their nests were from 4 to 40 feet up, and mixed with old nests. They were generally placed against the trunk of the spruce fir tree, but some were towards the smaller end of the branches. They resembled those of the ring-ousel and blackbird. The outside was composed of sticks, coarse grass, and weeds gathered wet, matted together with a small quantity of clay, and lined with a thick bed of dry grass. None yet had more than three eggs—we afterwards found that five was the usual number, often six. They are like those of the blackbird, the ring-ousel, and the redwing; so alike are the eggs of the four species that a drawing of one might apply to all. They are sometimes so closely freckled all over that reddish brown predominates. It is the most abundant bird in Norway, and is generally diffused over that part we visited—from Drontheim to the Arctic circle. 200 nests or more may be found within a small circle of the forest."

Mr Wolly also—writing from Sweden—says—

> "He found unfinished nests and fresh-laid eggs near Kelix on the 30th of May," and that "the four or five breeding-places he found were amongst very young fir trees upon the borders of the forest, and near cultivated land."

This agrees with my own experience of birds' nests, which are generally on the outskirts of woods. Therefore, no wonder Mr Hewitson and party were "disappointed in rambling all day through the almost impassable forests" of Norway, when searching for fieldfares' nests.

THE SONG THRUSH, OR MAVIS.

(Merula Musica, or Turdus Musicus.) Linn.

> "In every glen the mavis sang,
> All nature listening seemed the while,
> Except where greenwood echoes rang,
> Amang the braes o' Ballochmyle."—*Burns.*

Except perhaps the lark, this is the best of all our song birds, and is well named *musicus*—the song thrush. Like a bonnie Scotch lassie, it is a true native of St Andrews. I say *except the lark* carefully, for, although his notes are clear and harmoniously mingled with variations, he is more of a feathered orator than a sweet singer, such as the linnet or the lark. His varied notes are more like the introduction to a great song than the song itself. For, as Burns says in "Queen Mary's Lament on the approach of Spring"—

> "Now lav'rocks wake the merry morn
> Aloft on dewy wing,
> The merle in his noontide bower
> Makes woodland echoes ring;
> *The mavis wild, wi' mony a note*
> *Sings drowsy day to rest;*
> In love and freedom they rejoice,
> Wi' care nor thrall opprest."

Tennyson also beautifully says—

> "Hear how the bushes echo! by my life
> These birds have joyous thoughts. Think you they sing,
> Like poets, from the vanity of song?
> Or have they any sense of what they sing?"

It remains with us all year, enlivening our groves and gardens in spring and summer, taking pot-luck with us in winter, augmented by flocks from the northern countries of Europe at the close of autumn. They come before the fieldfare and redwing, and usually with a north-east wind. After staying a few days, the great majority move further south. Those that remain never go in flocks, but disperse, and are undistinguishable from our native birds, and understand each other better than the human beings of the different countries. It breeds early, and sings in February—sometimes in January, if the season is mild. On my way to the harbour at half-past seven A.M., December 9th, 1889, the dawn of the dead of winter, I heard one sing long and loud on a leafless old elm tree at the Priory. It was so dark I could not see it, but on returning at eight o'clock it still sang, and I saw it. Being mild, a nest with four eggs was got on the 19th of January. They build in March, the first brood flies in May, the second in July, which I noted in 1890 at Abbey Park. Having occasion to be there daily during alterations, I also noted that the old birds, as they sat on their eggs in the shrubbery, turned their heads to the sun—from east to west—as if they worshipped the eye of day. The nest is usually of grass, roots, and moss outside, and plastered inside with clay, mixed with bits of straw or rotten wood, sometimes so water-tight as to make incubation abortive in rainy seasons. It is found in all situations, from a hollow scraped out amongst grass to the top of a dyke, or between the iron teeth of a harrow in a shed; sometimes high up on trees, but usually in a hedge, a holly, or a young tree. On the 17th of April 1856, I got a nest with five eggs in the fork of a larch fir at Denbrae, fourteen feet from the ground. I got another only three feet up in a wall tree in a garden the same day; and to show they are as various in their materials as in their situations, the outside of the first was constructed entirely of fine green moss, the other entirely of dried weeds—one weed had five stems 12 inches long, the inside 4 by 2½ inches, lined with mud, cows' droppings, and bits of rotten wood—the bits of wood forming a rough and jagged lining. They lay five of those well-known blue-green eggs, spotted with black, so often seen blown and hung on a string, heedless of the little songsters they had contained, and which might have taken part in the harmony of Nature, reminding me of Tannahill's feeling words, written in his favourite bosky dell on the braes of Gleniffer—

> "Awa' you thochtless murdering gang
> That tak' the nestlings ere they flee,
> They'll sing to you a canty sang,
> Then, O, in mercy let them be."

Wood says—

> "A pair had five nests in one season (one of which was destroyed), and reared seventeen young ones. The female was so tame that she permitted herself to be fed on her eggs. I have stroked the head of a mavis on her eggs, and know an instance of a male which took a fancy to a man, and persisted in following him about, sit on his shoulders, and sing with the greatest enthusiasm, and accompanied his protector into the outhouses. By degrees it grew accustomed to others. It had a strange predilection for steam, and was fond of perching on the edge of washing tubs, and would sing there though so enveloped in the vapour as to be hardly visible."

How different from the ill-used missel thrush, which was so heartlessly shot for guarding her eggs. I also knew a mavis' nest on an apple tree eight feet from the ground, which I used to visit when sitting on her eggs. She grew so familiar as to look down at me when within three feet of her, and did not fly, as if there was a tacit good feeling betwixt us—the opposite of that which made the missel thrush dash at the gardener's head—but it is the principle of Nature for kindness to beget confidence, and harshness to beget fear. For instance, a pair had their nest with five young ones on the end of a thrashing machine in the district. The children instead of harrying them, put down bread with which the old birds fed their young until they flew. It feeds on worms, snails, insects, and fruit, and when the ground is covered with snow it feeds on haws, hips, berries, or what it can find. When hard pressed it also resorts to the sea-beach, and with its weak bill breaks the hard shell of the common periwinkle *(Littorina littorea)* by dashing it against a stone; it also breaks the *Trochus conulus* the same way, for I have seen them do it. But the favourite shell-snails are the *Helix nemoralis*, so plentiful on the Links and Kinkell braes, and the common garden snail *Helix pomatia*, as the many fragments of their shells scattered round some stone testifies. On the Links, where there are very few stones, I have come across some specially used as an anvil by the thrushes, surrounded with their broken shells. But when the snow is deep this supply fails, and they have to resort to the sea-shore, back-courts, streets, and gutters of man—as the following trifling lines, "On seeing a mavis pecking in the gutter amongst ice and snow, opposite my window in the narrow Market Street, on March 5th, 1891, the day the barque 'Merlin' was wrecked, and all hands drowned," shows—

Dear speckled denizen of grove and wood,
  The feathered king of Scotia's summer song,
Which cheers thy help-mate and her callow brood,
  And makes the welkin ring the whole day long.

But ah! when winter comes with icy tread,
  And drives thee shivering to the snow-paved street;
When all around is frozen, sere, and dead,
  Pale pity shuns thy pleading eye to meet.

To see thee starving amongst ice and snow,
  So vainly seeking what you cannot get;
Cowering and shivering—the type of woe,
  Starvation—or a cage around thee set.

The "Merlin" was wrecked near the Step Lake. This severe winter killed so many of our blythe speckled mavises that very few of their bonnie blue eggs were seen in their clay-lined nests, or their cheerful songs heard in our gardens, or on the tall trees in St Andrews for some years afterwards, for it was far in April till the snow thawed. To show that there is no invariable time for birds to sing, or starve, or build their nests: Early in January 1889—only two years before this long storm—thrushes' nests were got with eggs, and on the 27th of April I saw young mavises fly out of their nest in a pear tree at Greenside Place. They may be starving in December and January the one year, the next singing in the dead of winter—such is the singular providence of Nature. But hard frost is more fatal to the soft-billed thrushes than snow if there is thaw. I once saw a mavis break its bill in trying to peck amongst ice, and as a proof that frost is worse than snow, we erect a board with food for birds; during frost it is thronged, but when thaw comes, even though the fields are covered with snow, they disappear, and return again if frost sets in. But of all the thrushes the delicate redwing suffers most, as I have seen more of them lying dead in severe winters along the sea-shore and on Kinkell Braes than any of the rest. And, as the crew of the "Merlin" were drowned by the sea, many of the soft-billed thrushes were starved by the ice and snow. I observed that those left were not so shy that year—even in their summer haunts. The long storm and nearer contact with man seem to have had a taming influence—or the lateness of the season—(nearly two months after their usual time) made them build more openly, and less heedful of man than usual, which reminds me of Clare's beautiful lines—

"Within a thick and spreading hawthorn bush,
  That overhung a molehill large and round,
I heard from morn to morn a merry thrush
  Sing hymns to sunrise, while I drank the sound
With joy; and often an intruding guest,
  I watched her secret toils from day to day.
How true she warp'd the moss to form her nest,
  And modell'd it within with wood and clay,
And, by and bye, like heath bells gilt with dew,
  There lay her shining eggs as bright as flowers,
Ink spotted over shells of green and blue;
  And there I witnessed in the summer hours
A brood of Nature's minstrels chirp and fly,
  Glad as the sunshine and the laughing sky."

These again remind me of Burns' lovely lines on "Logan Braes"—

"Within yon milk-white hawthorn bush
Amang her nestlings sits the thrush,
Her faithfu' mate will share her toil,
Or wi' his sang her cares beguile."

The mavis, like the lark and all our song birds, is an early stirrer. It is impossible to anticipate his morning song, as I have often proved in the long days of June, when the short night was scarcely done when morning rose—in fact, the night with morning mingled. I have heard his cheering song betwixt one and two A.M. from some tall tree, while the lark was trilling a still more cheerful one with loftier melody higher up in the sky, when the early cock's shrill clarion was hushed between two of his plumpest wives in his feathered harem. The thrush's peculiar song, or symphony, has been tried to be writ in rhyme, but with poor success, as the following shows—

"Dear, dear, dear
  Is the rocky glen;
Far away, far away, far away
  The haunts of men!
Here shall we dwell in love,
With the lark and the dove,
Cuckoo and corn rail;
Feast on the banded snail,
  Worm and gilded fly;
Drink of the crystal rill
Winding down the hill,
  Never too dry.

With glee! with glee!
  Cheer up! cheer up! cheer up! here
Nothing to harm us; then sing merrily,
  Sing to the loved one whose nest is near.
        Qui, qui, qui, kween, quip,
        Tiurru, tiurru, chipiwi,
        Too-tee, too-tee, chiu, choe,
        Chirri, chirri, choee,
        Quiu, qui, qui."

But the varied song of this thrush is indescribable. To me its wild and varied notes are more soul-stirring than the mellow whistle of the blackbird, and have a more pleasing effect than even the more cheerful song of the lark. It is heard at all times, but chiefly at early morn and dewy eve, nor ceases though the moon glowers doon to question its propriety. From this it is aptly called the Scottish nightingale; and Burns, our National bard, took note of this among the "Braes o' Ballochmyle," for, as already noted, he says—

"'*Twas even*—the dewy fields were green,
  On every blade the pearls hang,
The zephyrs wanton'd round the bean,
  And bore its fragrant sweets alang;

In every glen the mavis sang,
All Nature listening seemed the while,
Except where greenwood echoes rang,
Among the braes o' Ballochmyle."

As in "Queen Mary's Lament" he also says—

"*The mavis wild, wi' mony a note,*
Sings drowsy day to rest."

And in Cluden's woods he bids us—

"Hark, *the mavis' evening sang*
Sounding Cluden's woods amang!"

What can be finer than his rhymed picture of the lark's early song, and the mavis' late one, "that *hails the nicht fa,*'" in his exquisite pathetic song of "My Nannie's awa?"—

"Thou laverock that springs from the dews of the lawn,
The shepherd to warn o' the grey breaking dawn;
And thou, *mellow mavis that hails the nicht fa'*,
Give over for pity—my Nannie's awa."

Which Wordsworth seems to have copied when writing—

"Thou thrush that singest loud, and loud and free,
Into yon row of willows flit,
Upon that alder sit,
Or sing another song, or choose another tree."

Or, as Burns more cheerfully sings of the lass "On Cessnock Banks"—

"*Her voice is like the evening thrush*
That sings on Cessnock Banks unseen,
While his mate sits nestling in the bush;
And she 's twa glancing, sparkling een."

He even goes the length of coupling the evening song of the mavis with the nightly hooting of the owl, for he says—

"Ah no, sad owl! nor is thy voice less sweet
That sadness tunes it, and that grief is there,
Nor that the thrush *deserts the evening spray,*
When darkness calls thee from thy reverie."

Indeed he claims the evening song of the thrush as one of his feathered teachers, for in the "Brigs of Ayr" he says—

"The simple bard, rough, at the rustic plough,
Learning his tuneful trade from every bough;
The chanting linnet, or *the mellow thrush*,
Hailing the setting sun, sweet in the green thorn bush."

So that if our "*evening thrush*," when "*singing drowsy day to rest*," "*hailing the setting sun*," and "*hailing the nicht fa'*," be not the mission of the nightingale, I know not what is. Burns has hit the mark in our mavis, and if he does not mention the throstle in his works, neither does Shakespeare mention the mavis in his.

Wordsworth also notes the evening song of the mavis—

"The linnet's warble, singing towards a close,
Hints to the thrush 'tis time for their repose;
The shrill-voiced thrush is heedless, and again
The monitor revives his own sweet strain."

But sometimes his excessive love of song is tinged with jealousy, for—

"At Chester in 1880, a thrush, in a happy state of freedom, was singing in an orchard, when its music excited similar efforts from a caged thrush, suspended in front of one of the houses. These feathered rivals raised their musical efforts higher and higher, and still higher, when suddenly, as if it could stand it no longer, the wild bird darted from its higher perch on a tree down upon the wicker one of its competitor, and like a little fury, broke the bars, entered the cage, and made a furious assault upon its captive rival, the owner of which, hearing the skirmish, came out, saw what was up, took the aggressor prisoner, and sold it into bondage."

Could the caged bird have spoken, it might have said with Wordsworth—

"Thou thrush that singest loud, and loud and free,
Into yon row of willows flit,
Upon that alder sit,
Or sing another song, or choose another tree."

The wild mavis paid dearly for its jealousy, as human *prima donnas*, as well as tenors, sometimes pay dearly for a rival spirit of emulation. But I doubt if that wild mavis ever sang so sweetly in a cage as it did that day when it sat along with Freedom on the old pear tree. But is it not a little strange that the sweetest singers with man are the hen-birds, while the ladies of our feathered friends are mutes?—no doubt being taken up with the cares of their families, which they cannot delegate to nurses. Yet, as Shakespeare says, "He that has no music in his soul is fit for sieges, stratagems, and murders," for the love of Nature—from a lark in the sky to a little gowan on the lea—is the highest of all our pleasures. "Go into a field of flowers," said the Lord to Ezra, "and there I will come and talk to thee." No doubt of it, for go where we will, if we truly love Nature, God or good will come and talk to us. "We will find tongues in trees, sermons in stones, books in the running brooks, and good (or God) in everything." Another poet says—

"On ev'ry thorn delightful wisdom grows,
In every rill a sweet instruction flows."

"For Nature never did betray the heart that loved her."

Or, as Cowley quaintly puts it—

> "If we could open and intend our eye,
> We all, like Moses, would espy,
> E'en in a bush the radiant Deity.'

And a dear soul-inspiring hymn to God and good is the sweet wild song of the mavis, from an old ash tree by the side of a dusty road, heard when wandering by a lonely burnside. For, after all, a contented mind, good health, and well-balanced judgment, are the best and truest friends we have. As the body, simply free from pain, and the mind from perturbation, is the sum total of human happiness, let exciting pleasure-hunters say what they may. For, as we see the little throat of the mavis swelling with love as he proudly sits on the highest branch of an old tree, feeling himself the king of Scotland's songsters—not brooking rivalry—we cannot help feeling our spirits stealing up beside him in a purer atmosphere of thought, for

> " The thrush's song
> Is varied as his plumes, and, as his plumes
> Blend beauteous each with each, so runs his notes
> Smoothly, with many a happy rise and fall ;
> How prettily upon his parded breast
> The vividly contrasting tints unite
> To please the admiring eye ; so loud and soft,
> And high and low, all in his notes combine
> In alteration sweet to charm the ear."

And as a poet's proof that he sings early in the year, Burns, in his " Sonnet on hearing a thrush sing in a morning's walk on his birthday, January 25th," says—

> " *Sing on, sweet thrush, upon the leafless bough,*
> Sing on, sweet bird, I listen to thy strain ;
> See aged Winter, 'mid his surly reign,
> At thy blithe carol clears his furrowed brow."

Wordsworth also says—

> "Along the river's stony marge
> The sand-lark chants a joyous song,
> The thrush is busy in the wood,
> And carols loud and strong."

And yet our lovely Scottish nightingale is kept out of the list of the "Wild Birds Protection Act" by a British Parliament! Shame fa' the shade of St Stephen's on our heartless M.P.'s, who would not protect the "mellow thrush" when "hailing the setting sun, sweet in the green thorn bush." I need not describe the colours of the bonnie speckled mavis, for it is seen in every garden, not only about St Andrews, but about every town and village in Britain. When pressed for time they can build their nest very quickly, for when a millwright in the district and three of his men were making a thrashing machine they saw two thrushes begin their nest one morning. They flew over their heads and up amongst the joists, entering by the wide door where the men were working, and continued making their nest with all speed, quite heedless of the hammering below. Next morning at six o'clock they saw one of the birds sitting on the still unfinished nest. Prompted by curiosity, an apprentice climbed up and found she had laid an egg before the nest was completed, for only the bottom of the inside cup was plastered, instinctively knowing that it could not be done so well afterwards. When all the eggs were laid these watchful millwrights noted that the cock took his share in the hatching, but did not sit so long as the hen, and that he often fed her while she was on the nest. In thirteen days the young were hatched. The old birds carried off the shells. But besides the shells of their eggs, old birds carry off the droppings of their young—which are enclosed in jelly-like bags—and dropped away from the nest to keep it clean, which I have seen them often do. It is a wise provision of Nature, for it not only keeps the nest clean, but keeps it from being openly seen. Curiously, as long as young birds are kept to their nest in a basket or box, the membranous bag continues, but if they are let out it ceases; if shut down again it reappears. The heat and quiescence of the nest certainly cause it, which shows marvellous provision of Almighty wisdom. Macgillivray says—

> "On Thursday morning, the 15th June 1837, a pair began to build in an apple tree in my garden. On Friday afternoon the nest was finished, and on Saturday morning, the 17th, the first egg was laid in it, although the plaster in the inside was very wet. On Wednesday, the 21st, the female began to sit on five eggs; and on Monday, the 17th July, the young ones flew out of their nest."

On the 6th of June a keen ornithologist, wishing to know how soon the mavis laid again after being deprived of her young, took four ripe young ones out of the nest, and having caught the female, pulled the feathers out of her tail as a mark, and set her free. On the 21st he found her sitting on four eggs in another nest, these he took; and on the 8th of July she had another nest and eggs, which he allowed her to hatch and rear. And to show that birds possess reason, H. A. Page gives an instance of "intellect in birds"—

> "A thrush, not knowing the power of gunpowder, built her nest on a ridge of a whinstone quarry where blasting was going on. At first she

was much put about by the fragments of the rock flying in all directions, but would not quit the locality. She soon observed that a bell rang when a train was to be fired, and that the workmen retired to a safe post. In a few days when she heard the bell she left her nest, and flew down to where they sheltered themselves, dropping close to their feet. There she remained until the explosion took place, and returned to her nest. The men observing this, told their employers and visitors who came to the quarry, who naturally wished to see such a curious specimen of intellect in birds, but as the rock was not always ready for blasting when the visitors came, the bell was rung without the explosion. For a few times this answered the purpose, the thrush flew down as usual close to where they stood, but she soon saw she was trifled with by the explosion not following. The result was that when the bell was rung she peeped over the ledge to see if the workmen retreated, and if they did not, she quietly kept her position, saying to herself, "No, no, gentlemen, I'm not to be roused off my eggs merely for your amusement."

It is said the mavis lives ten years, the blackbird twelve.

THE REDWING.

(*Merula Iliaca, or Turdus Iliacus*). *Linn.*

"From naked groves nae birdie sings;
To shepherd's pipe nae hillock rings;
The breeze nae od'rous flavour brings
From Borean cave;
And dwyning Nature droops her wings
Wi' visage grave." —*Fergusson.*

This is the song-thrush, the nightingale of Norway, but it only comes to us in winter, when "nae birdie sings," and "fieldfares pensive flock." It generally comes before the fieldfare, about the end of October. In severe winters it migrates further south when pressed by want and woe—those twin ills of life. And when I have seen them chased over the snow when hardly able to fly, I have moralised on the incongruity of Nature thus forcing her creatures to quit one cold and bleak country for one little better. It is smaller and even prettier than our native song-thrush, but is easily known by a long whitish mark over the eyes. The general colour of the upper parts is olive brown; forepart of the neck and breast white, with long streaks of black and pale brown; the sides of the body and under wing coverts light red—hence its name. It is $8\frac{3}{4}$ inches long, extent of wings 14 inches. In food and habits it is the same as the rest of the thrushes, only it does not breed in company like the fieldfare, but, like our mavis, in a bush or stunted birch—sometimes like our ring-ousel—(the mountain blackbird), on the ledge of a bare rock, or on the roots of a fallen tree. The nest is like the mavis'—outside, bent, grass, twigs, and moss ; inside, a thin layer of mud, covered with a thick lining of fine grass. The eggs bluish-green, similar to those of all the thrushes, except the missel thrush, which resemble the shrike's, those of the mavis being the bluest of all. It is the only thrush in Iceland, and lays there in the first of June, and has two broods in the year. In Norway Mr Hewitson has got their nests with young on the 13th of June. In his "Rambles through Norway" he says—

> "Throughout that part we visited it is known by the name of nightingale, and well it deserves to be so, for to a sweeter song I have never listened. Like the nightingale of more southern skies, its clear sweet song would occasionally delight us during the night, if the two or three delightful hours of twilight which succeed the long day of a Norwegian summer can be called night. The birds, like the other inhabitants of the country, seem loth to lose in sleep a portion of this delicious short-lived season."

In this respect it is like our mavis, and from this cheerful, loving trait of its nature, I hope, my young friends, when you see them during a hard snowy winter seeking our hospitality, you will forbear to hunt and kill them when begging a few snails, or worms, hips, haws, or berries from us in Scotland ; for in February 1888, when snow covered the country, I saw them hunted and stoned off each small green or brown patch of earth on the Kirkhill and braes next the sea, and in the old Castle Court, as well as on the sea beach—many of them killed when scarcely able to fly. Yet, in milder seasons, before they leave us in April or May, their low sweet winter song may be heard (something like the starling's at this time), as if in gratitude for our hospitality, preparatory to their louder song of love to their mates when brooding on their young in their native woods and wilds of Scandinavia. They only leave us to reproduce their species, and, like the fieldfare, it is strange that none remain to breed with us—they are so like our own song-thrushes in colour, size, food, eggs, and habits. No wonder it retreats from Scandinavian winters, as it is the first to suffer with us in severe frost. They sometimes prolong their stay till May, and, like the swallows and fieldfares, they congregate and indulge in a low twitter of joy at the approach of summer. As the chief food or fare of thrushes is got on the open field, it is no wonder their soft bills make them suffer most in hard winters, for earth-worms and slugs do not lie torpid in winter, but move about in mild weather when there is no frost, and much hurt the tender leaves of winter wheat; and as worms make their casts in March and April, at the same time as the ivy berries are ripe—if the frost be not too severe and prolonged, they have a partial choice of food. Therefore we should not be sorry at a fair amount of frost and snow, for what helps to kill the soft-billed thrushes, kills also many a noxious insect and slug. On the 26th December 1892, the schooner "Ann," of Berwick, potato laden, had to be cut out of the upper harbour to let her to sea, there being about 3 inches thick of ice, which has not occurred during the last 60 years; and yet a flock of starlings were bathing in broken places of the Kinness burn, within a few yards of people sliding and skating, and enjoying themselves as much as on a summer day; but the starling is a hardier bird than the thrush—and I merely mention this to show the difference of the two birds.

The Blackbird, or Black Thrush.

Merle, or Garden Ousel.

(Turdus Merula). Linn.

All hail! dear minstrel of the grove,
  Thou golden-mounted living lute!
When thou art whistling songs of love
  How can the human soul be mute?

This is the typical Merula—the "*Merle*" of poetry and song. The mellow whistle and general habits of this shy yet trusting denizen of our gardens and groves, are too familiar to need an elaborate description here, at least I have no wish to emulate Dr Macgillivray, who says, "On referring to the descriptions of the blackbird by British authors, I find nothing in them to which the reader is desired to look; and may observe that *my own observations* and those of Mr Weir seem to *afford a fuller history of the species than any hitherto published, in this country at least*." Be that as it may, unless when the female is incubating, or employed in the cares of her family, and the male perched on some tall tree, chimney-can, or high wall, bearing her company with his melodious song, it is of a restless, shy disposition—always anxious to get out of sight, gliding amongst the underwood or closest hedge with singular celerity. It is a native of Britain, but its numbers are increased by large flocks from more northern countries on the approach of Winter. From recent scientific observations, lighthouse-keepers (on the look out for the purpose) report that "blackbirds cross the North Sea in *extraordinary* numbers in September, October, and November." Like the mavis, it also feeds on worms, insects, snails, and haws—that winter store of the feathered nation. It is also fond of the *Helix nemoralis*, whose shell it breaks against a stone, but it makes the gardener its enemy by taking some ripe strawberries aud cherries, who, in his one-sided care for fruit, forgets the great good it does in its destruction of snails, worms, and other garden pests. For as the cultivation of our soil and plants increases, so does vermin life. By loosening the soil fertility is augmented; the larvæ and maggots thrive best on such ground, while the insects, which feed upon the larvæ, blossoms, and seeds multiply in a corresponding ratio; for, in accordance with the universal law, Nature brings forth as many creatures as she can sustain. For this reason, there are certain insects appointed for each species of plant in order to prevent undue multiplication; so, also, are there certain birds for each species of insect, for Nature rules by simple but stringent laws, which, if broken, retaliate upon the breakers—as the mice have done upon the gamekeepers and farmers for killing the owls, the buzzards, and the kestrel. If the balance be broken, an unlimited increase of vermin is the result, by depriving the natural enemies of the vermin of life. We see instances of this in the wheat-fly, the turnip-fly, the green caterpillar on the gooseberry and the currant bushes, and legions more. Insectivorous birds disappear more and more because they are persecuted on cultivated ground, where they have neither security nor shelter for breeding. Where are now the woods, hedges, wild shrubs and bushes? The old hollow yet thick-leaved trees? Agriculture answers that every inch of productive soil is forced to yield its utmost; yet the farmer destroys his best friends, who labour honestly without fee or reward to help him in his efforts. And, singularly, the most useful insect destroyers—those which would free us most from the real vermin—are the very ones man himself most assiduously tries to exterminate—either through ignorance, or love of tyranny over inoffensive creatures, or, what is worse, mere wanton destruction.

The blackbird, like the mavis, is an early breeder, beginning in March, sometimes in January. The nest is similar to the rest of the thrushes, but has more clay or mud in its composition. It is 6½ by 5 inches outside, and 3½ by 3 inches inside, also lined with fine dry grass; the eggs five, sometimes six, bluish-green, spotted with brown, found in all situations—from a heap of pease sticks on the ground to the top of a wall, but usually in a hedge, bush, or spruce fir. It has often three broods in the year. Mr Blyth, in the *Naturalist*, states that a "pair built four successive nests upon the island in St James' Park, and reared seventeen young ones—the three first broods were five each, the last, two; and that another pair raised three broods one year in a garden near his residence." But I never knew them rear more than two broods in one year and in the same nest. Having cause to be daily at Abbey Park, during alterations—untenanted for years; the policies were overgrown with shrubbery, a perfect home for the blackbird and the mavis —I had ample opportunity of observing their habits. In the spring almost every holly, yew, and thorn bush had a nest. In a bunch of boxwood at the disused front door a mavis was making her's when the masons began to break out another front door; and as the windows of the old schoolrooms were broken, the inside of the building was swarming with birds' nests as well as the shrubbery. I got a blackbird's nest with eggs on a bookshelf, another with young in a press, another on a chimney shelf, and a fourth in a bedroom grate; besides others in every conceivable situation in the playground square and the verandah outside—one in a hole where a brick was out, another on an old crate, a third in an old basket, and a fourth in the scraped-out hollow on the grass, on the drying-green, the young of which were gobbled up by a dog. The old true story of the balance of Nature; if the boys were not to be in the schoolroom the birds would—for "when the cat is away the mice *will* play," as they are now doing in the fields when the owls are away. The young of two of them flew in the middle of May, and were again sitting on eggs in the same nest in the beginning of June; nearly all the rest were harried or deserted during the alterations. One rebuilt in the hole where I had torn out a joist, and one day as I stood within six feet watching her pressing in the finishing layer with her bill, on seeing me she gave one peculiar scream, flew out of the room, and never returned, as if she knew her treasure would be robbed. As another proof of the various situations of birds' nests, I got a blackbird's with five eggs in an old fishing boat lying on the East Bents, another with ripe young ones on the very top of the broken stump of a willow tree, eight feet from the ground; another in a large apple tree, with five eggs, fifteen feet up. But the strangest blackbird's nest I ever saw was one on the stump of a hedge, two feet from the ground, with five young ones; it was nearly all made of paper. I counted ten pieces, some as large as 10 by 8 inches. It looked just like a rough paper nest made by printer boys to make a fool of nest-making. The only one I ever got like it was one in a broken gas lamp in the passage leading to the gymnasium, which was entirely composed outside of shavings, as this one was of paper, as if made by an apprentice joiner, while the alterations were going on. It was built in the bottom of the lamp, with the short gas bracket projecting over it—yet the young ones got leave to fly. On the 23rd of April 1889 I got a nest with four eggs on the top of some old windows in a joiner's woodyard in Greenside Place, within 20 yards of a mavis's, with five young ones, on a pear tree close by, which got leave to fly on the 27th. These two nests are a fair example of the time these thrushes breed—the blackbird sitting on eggs as the young mavises were flying. In a wild state a male blackbird and a female mavis have been known to breed and rear their young, but the usual course of Nature was no further interfered with, as hybrids have no reproduction of species. Such freaks of sportive nature do not affect the order of creation, which ordains, with unerring certainty, like the tide—"Thus far shalt thou go and no farther"—that each bird and beast, insect and fish shall continue "after their kind," as created, if not extirpated. There are also such freaks in nature as white blackbirds. I have a male stuffed, whose head and neck are white, and on the 1st of June 1891 a woman at the Grange, two miles from St Andrews, caught a perfectly pure white one and a black one—off the same nest—by throwing her apron over them, as they could scarcely fly. These were all she saw of the brood, the rest either killed or strayed, having been probably too early scared from their nest. She put them in a cage in the washing-house; the old birds came and fed them for a fortnight. I saw the white one on the 9th of December in its cage; it was strong and healthy, perfectly formed, and pure white, not a dark feather in it. It had moulted, and, being a male, the bill and the eyelids were becoming yellow, and it had begun to whistle. Next year it whistled so well and looked so beautiful that it was coveted, and sold to Mr Bell, of Belmont Dundee. And to show the freaks of birds themselves in nest-building—

> "A pair of blackbirds built their nest between the spokes of a railway waggon wheel, said waggon being in use several times a day. About 150 yards to the west of Cairntows level crossing, on the Niddrie and Edinburgh branch of the N.B.R., to the south of Duddingston Loch, there is a siding for a brake-truck, which is attached to the waggons taken up the incline to St Leonards Depôt. It is removed three times each day, at 6.30 11 A.M., and 4 P.M., and returned to the siding about 7.30 A.M., 12 noon, and 5 P.M. From the 7th to the 14th April 1879 the guards who work the traffic stationed on the branch saw the footboard opposite the right front wheel littered with straws, mud, &c., but paid no special attention. On the 15th, at 5 P.M., the brake was placed in the siding, not being needed until 11 A.M. next day, the 16th. When they came the guards were surprised to find a nest partly completed between the two spokes of the wheel behind the centre of the waggon spring and horn-plate. The nest was carefully removed and laid on the ground, and at each trip was returned to its place. This was done daily. By the 19th the nest was complete. On the 21st one egg was laid, another on the 22d, and on the 23d a third was added. Each time the guards approached the truck the bird was found sitting on the nest and it was with difficulty she was induced to leave it. To prevent the nest being destroyed during the absence of the brake it was placed under the chock-block at the entrance to the siding, where it could not be seen by passers-by. The bird sat constantly up till the 26th (Saturday), but during Sunday some ruthless hand had been at work, for when the guards returned on Monday morning the nest was found destroyed, and the eggs lying amongst the ballast. It is to be regretted that an opportunity was not given to see if she could have brought out the young in such peculiar circumstances."—*From the Scotsman.*

A pair curiously built two nests in one wicker basket at Cameron Bridge Distillery contiguous to each other, and reared their young; the birds were very familiar with the workmen. On May 21st, 1884, the Dundee *Evening Telegraph* said—

> "A pair of confiding blackbirds have built their nest in a hollow of one of the "shores" supporting the staging between two ships constructing in Craigie Shipyard. Notwithstanding the noise the birds seem quite undisturbed. The hen is now hatching five eggs. The workmen are attached to the birds, and *take care* to prevent any injury befalling them."

But on the 26th of June 1882 I got a nest in a wall tree at the Shorebridge with six deep-sitten eggs cold and wet, *uncared* for, this being the third blackbird's nest with unhatched eggs, and one with dead young ones, I had found in gardens that year, through the old birds being shot—a sad proof of the mortality of our mellow whistling blackbird, which caused me to pen these trifling lines " On a Missed Blackbird"—

Nae mair I hear your cheerie note
  When morning dawns or e'ning fa's—
Alas ! I fear your little throat
  Is hushed through man's unfeeling laws.

Perhaps your wee brood in their nest,
Or eggs, unhatched, are cauld and wet,
Because by Nature you were prest—
Some tempting cherries sweet to get.

As if you hadna equal right
To live and whistle like himsel';
Enjoy the bonnie summer bright,
And court within the grove or dell.

Also, on finding five young gorbits dead in a nest, I wrote—

They huddled close—they couldna flee,
But peered aroond sae wistfully;
For dark the nicht began to lower
Wi' soughing blast and pelting shower.

Then hoarsely shook the leaves around,
Wi' sic an eerie, moaning sound;
Yet nane were there to hap them owre
Wi' cosy wing that bitter hour.

Three days and nichts they lay the same,
Alas! their mither never came
Again, wi' couthie, kindly wing,
Life-giving bield, or food to bring.

But, ah! full many a blow is given
Beneath the azure brow of Heaven;
And many a careless, thochtless stroke
A mouth has closed, and heart has broke!

For life hangs close on ane anither—
Like those wee gorbits on their mither;
Then rashly tak' not life away,
Enjoy your ain—let ithers play.

It is a pity that, independent of the great good they do in restricting insectivorous pests, our feathered songsters are so ruthlessly persecuted, and their nests harried. Regarding this, a touching incident appeared lately—

> "A number of schoolboys, attended by their master, were wandering about the Great Park of Windsor, when one of them discovered a blackbird's nest with young ones. He made a prize of it, and was taking it home when the cries of their young were heard by the old birds. Notwithstanding the presence and noise of so many boys, they did not desert their helpless offspring, but kept near them for about three miles, flying from tree to tree, and uttering those wailing notes so peculiar to the blackbird. This caused the boy to place the young birds in a cage, and to hang it outside of the house, which was close to the town of Windsor. They were fed regularly by the old birds. As they grew up the boy sold first one then another as he got customers for them, until they were all sold. The morning after the last bird was sold, the female was found dead beneath the cage where her offspring had been confined, as if she had been unable to survive their loss. So strong, indeed, is the attachment of blackbirds for their young that a boy was struck violently on the head by one while he had a young one in his hand which he was taking from its nest."

And I know an instance of a pair following a boy into his house, pecking at his head, where he was taking their young, and narrowly escaped being caught themselves. I wish the feeling shown by Tennyson in his "May Queen" was more general—

> "O, blackbird, sing me something well;
> While all the neighbours shoot thee round,
> I keep smooth flats of fruitful ground
> Where thou may'st warble, eat, and dwell.
>
> The espaliers and the standards all
> Are thine; the range of lawn and park,
> The unsettled black-hearts ripen dark,
> All thine, against the garden wall."

The courage they show to cats is well known. On the 16th of May 1885 I saw a young one on the ground at Abbey Walk. It had fallen from its nest among the ivy, and was unable to fly. A cat was creeping towards it about to spring. The old ones flew down and dashed at the cat with such force, screaming all the time, that the cat was really afraid and ran away. I put the young bird up amongst the ivy, moralising at the strange power of Nature, which can transform the most timid creatures into lions or eagles in defence of their young. For instance, see the gleaming eye of the sheep and the ruffled feathers of the hen in defence of their lamb and chickens, running about as if possessed by furies. My attention was once drawn to the loud chirring of a blackbird in a garden, flying from tree to tree in a most excited state. On looking, I saw the house-cat prowling amongst the bushes. Whenever it appeared the blackbird dashed down in pursuit, and the cat had to run to the house for shelter. On another occasion a cat was on the top of a paling trying to get at a blackbird's nest near it. The hen-bird left her nest, and flew to meet it, placing herself almost within reach of the cat, uttering piercing screams. The male also showed the utmost distress by piercing screams, sometimes sitting on the paling just before the cat, which was unable to spring, owing to the narrow footing, then flew on her back and pecked her head with such violence that she fell to the ground, followed by the bird, which drove her away. A second time the same occurred. The bird was again victorious, and the cat was so intimidated that she gave up her attempts to get the young birds. After each fight the blackbird celebrated his victory with a song, and for several days after he hunted the cat about the garden. But it sometimes plays the part of the cat by catching mice, as the following fact from the *Dundee Advertiser* shows:—

> "One of the accomplishments of a blackbird belonging to a householder in Albert Street, Dundee, deserves to be recorded. This bird is so tame that it is allowed perfect liberty of action; it roams about the house, and takes a trip to the door, but it never seeks to fly away. During the past week it seemingly wishes to be useful as well as ornamental, for it has actually caught three mice—one on Friday last—and it shows so much zeal in its self-imposed work that its owner is quite elated at the prospect of 'blackie' clearing his house of these troublesome creatures."

I know another instance where a fine whistling male was allowed daily to leave its cage and fly about the garden, and even hedges adjoining, and there remain with others, yet always returned to its cage when called upon by a familiar voice, freely. So it is well-named the garden-ousel and the merle—both of which the old poet, Michael Drayton, calls it in one verse—

"*The ousel* near at hand, *that hath a golden bill,*
As Nature him had mark't of purpose t' let us see
That from all other birds his tunes shall different be;
For with vocal sounds *they* sing to pleasant May,
Upon *his dulcet pipe the merle only play.*"

Shakespeare, too, in "A Midsummer Night's Dream," makes Bottom the weaver sing—

"*The ousel-cock, so black of hue,*
With orange-tawny bill;
The throstle with *his note so true,*
The wren with little quill."

This, by the way, is a compliment to the throstle, our missel thrush. Tennyson, in his "Gardener's Daughter," appropriately says—

"*The mellow ousel flitted in the elm,*
The redcap whistled, and the nightingale
Sang loud, as though *he* were the bird of day."

James Montgomery also pays tribute to our golden-billed blackbird—

"Golden bill! golden bill!
Lo! the peep of day;
All the air is cool and still—
From the elm tree on the hill
Chant away;
While the moon drops down the west
Like the mate upon her nest,
And the stars before the sun
Melt like snowflakes, one by one,
Let thy loud and welcome lay
Pour along;
Few notes, but strong.

Jet bright wing! jet bright wing!
Flit across the sunset glade,
Lying there in wait to sing,
Listen with thy head away,
Keeping time with twinkling eye,
While from all the woodland glade
Birds of every plume and note
    Strain the throat
Till both hill and valley ring,
And the warbled minstrelsy,
Ebbing, flowing like the sea,
Claims brief interludes for thee;
Then, with simple swell and fall,
Breaking beautifully through all,
Let thy Pan-like pipe repeat—
    Few notes, but sweet."

Montgomery is perfectly correct, for I have heard the blackbird's whistle from "the peep of day" till "the moon dropped down the west," and "across the sunset glade." He is also an early songster—hence an early breeder. From my notes I have heard his love-whistle at dawn of a winter's morning, and also when the street lamps were lit at night. And in spring he whistles or sings at all times and in all weather. One note will suffice:—"—April 9th, 1856. Although this day has been very cold, dull, and rainy throughout, yet it did not keep the blackbird silent. One whistled lovely at three P.M. when raining heavy, and at eight o'clock at night I heard one in a garden at Greenside Place, and one in my own garden about the same time, proving that the blackbird tunes his mellow pipe in all weather, from dawn till dusk at this time of the year, for the street lamps were lighted, and it was pouring with rain while he whistled." Another note in "May 27th, 1858. On this rainy night at dusk I heard a blackbird whistling on an old elm tree, almost hidden by the branches; he was vociferously and continuously answering another one equally loud, which was sitting somewhere down the Pends, both of them keeping up the concert till nearly dark." So it might also, as well as the mavis, be called the Scottish nightingale to be thus whistling within the verge of night—a time which Burns calls the time of love, for he says in his political skit, "The Fete Champetre"—

"When love and beauty heard the news
    The gay greenwoods amang, man,
Where, gathering flowers and busking bowers,
    They heard the blackbird's sang, man;
A vow—they sealed it wi' a kiss,
    Sir Politics to fetter,
As theirs alone, the patent bliss
    To hold a Fete Champetre."

On the first day of February 1879, when going down the Butts Wynd on my way to Strathtyrum to see the skaters and curlers, I heard a blackbird whistling on the top of a chimney at Cliftonbank, although all around was covered with snow, on which I wrote some poor verses, and this the first—

The ice is thick, the skater glides along,
And loudly birrs the curler's roaring-stone,
But hark ! adown the glen the blackbird's song
Comes whistling through the air that winter's gone—
Or on the eve to quit his icy throne.

1879 was a severe winter, and his whistling on a chimney-can, when curlers were on the ice, and the country covered with snow, shows his desire to begin the cares and duties of a family, impelled by the same law of Nature, called love, which draws man and woman together, and makes such poets of Nature as Burns, sing, rhyme, or whistle about it. On the 8th of June 1888 I heard one whistling at ten o'clock at night at Abbey Park, and at noon on the 13th I saw one sitting on the rigging of the Town Hall pouring forth his loud mellow song in the midst of thunder and lightning, so elated as to continue his song on the wing as he flew down and alighted on the big poplar in Queen Street Garden, on which I penned—

A blackbird whistled on the wing
  As I passed on, sae cheerie, O ;
Wi' joy he made the welkin ring,
  Nae debts to mak him wearie, O.

A shot ! it micht hae brocht him doon
  When he was whistling merry, O,
But, though it had, 'twould been a boon,
  For life is like a cherrie, O.

I have heard him sing from two in the morning till ten at night ; but rosy dawn and dewy eve are his best times. He has two songs, one for the morning, which is short—more of repetition and harsher than his noonday one—and Burns truly says—

"The merle in his noontide bower
Makes woodland echoes ring ;"

not so mellow as his evening one, which, when heard for the first time after a severe winter, goes to the heart, at least to mine, and gives a pleasing, soul-inspiring feeling that no other bird can give. Burns felt it when he wrote—

"In days when daisies deck the ground,
  And blackbirds whistle clear,
With honest joy our hearts will bound
  To see the coming year."

Also when he says—

"In gowany glens the burnie strays
 Where bonny lasses bleach their claes,
 Or trots by hazelly shaws and braes
  Wi' hawthorns gray,
 Where blackbirds join the shepherd's lays
  At close o' day."

Yet, for all that, he wants the varied richness and power of the mavis; indeed, some say that he is merely a mocking-bird, and borrows his best notes from that bird; at least in a wild state he has been known to crow like a cock. An instance is recorded of his crowing near a farmyard, ever and anon varying his tune with his natural song. Another, in which he mimicked the cocks so successfully that when they answered his supposed challenge he seemed delighted, and flapped his wings when he crowed, and continued the mock rivalry; which reminds me of a valuable mocking-bird which was stolen from a Savannah gentleman, who heard that a New York visitor was returning north with a remarkable bird, and, hurrying to the vessel he found that the bird in the passenger's possession was his own. The new owner would not give it up, so the case went before a Magistrate. The original owner said he would whistle a tune, and if the bird did not repeat it he would give up his claim, which was agreed to. He then began to whistle "St Patrick's Day." The bird listened a moment, took up the air, and finished it, which settled the question. The New Yorker offered 1000 dollars for the bird, which was refused. When taken young the blackbird can be taught to whistle several tunes. I knew one in St Andrews which whistled clearly and distinctly "Owre the water to Charlie." Singularly it is one of the few song birds not included in the "Wild Birds Protection Act," which Acts, however, are almost dead letters, for during the nesting and close time people burn heather and whins, harry and shoot our blithe feathered friends with impunity. But I wish our gardeners, and the public generally, would forbear destroying this handsome and shy, yet half-domestic songster of our gardens and groves. Then, without cages, we would listen to his cheerie mellow whistle on every tall tree, and on the riggings of our houses, and even churches, at all times of the day. I was so struck with hearing one on the rigging of the old town church that I penned some trifling verses on it:—

A blackbird perched upon the kirk,
 And O, he whistled bonnie O,
While leddies fair within did smirk,
 It tried to cheer Mess Johnnie, O.

It whistled and precented there
Sae natural and cheerie, O;
While Mess John glumly said his prayer,
And man o' creeds was wearie, O.

Preferring a musical concert—even in the church. When it alights it has a graceful habit of bending its body, jerking up its tail, then hops along, abruptly stops and flaps its wings before it begins to sing. But unless high up or screened by leaves it always glides out of sight; for while such birds as the pert sparrow and the robin only hop, the blackbird, like the rest of the thrushes, both hops and runs with celerity. As his name implies, the adult male is a *black bird*, with a bright orange bill. The margins of the eyelids, tongue, and mouth also yellow, gives this elegantly-formed thrush a lovely finished gilded look, the iris hazel. The female—unlike the ladies of humanity—is very plainly attired in sombre brown,* without the yellow finish—the young males being the same until they moult. The male is 10¾ inches to end of tail, and 16 inches in extent of wings—the female less. Like all the thrushes its range of food is wide; insects, worms, snails, berries, fruit, seeds and husks—including wheat and oats—mollusca and crustacea. But starvation, like necessity, has no law, if anything can be found to keep the fire of life burning. When hard pressed I have seen rooks feeding on the small black seeds of the laburnum, and watched blackbirds take a quarter of an hour to kill worms five inches long, by taking them in their bill and striking them on the soil, dividing them in two before swallowing them at two gulps. When sitting on the bank of the Eden, near Cupar, on the 20th February 1891, I saw one alight on the sandy soil; it stood and listened, then dug rapidly with its bill and unearthed a large worm, killed and swallowed it as described. They roost at dusk in winter amongst ivy, evergreens, or any sheltered place, thankful if for "daily bread" they have got a few haws or a couple of worms.

"For he that has enough can soundly sleep
The owrecome only fashes folk to keep."

The blackbirds live about twelve years.

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* But I have seen them with pink breasts.

RING-OUSEL, MERLE, OR MOUNTAIN BLACKBIRD.

(Merula Torquata.) Ray. (Turdus Torquatus.) Linn.

"When snowdrops die, and the green primrose leaves
Announce the coming flower, the merle's note,
Mellifluous, rich, deep-toned, fills all the vale,
And charms the ravished ear."

It is called the ring-ousel from the white ring or gorget round its neck; is also well named the mountain blackbird, as it frequents wild mountainous districts. Unlike its congeners, the fieldfare and redwing, it is more a summer than a winter visitor, and breeds with us, arriving in April and leaving in October, many remaining all year. It is larger than the blackbird, 11½ inches long and 19 in extent of wings; the female an inch less. Its song, when perched on a stone or rock, consists of a few clear, powerful notes, like those of the missel thrush, not so mellow as the blackbird's. Like all the thrushes, it is shy. It builds its nest on the shelf of a rock or steep bank, protected by a stunted tree or bush, or amongst whins, composed, like the rest, of dry grass, roots, twigs, or heather, some mud, and lined with dry grass; the eggs—usually five—bluish-green, larger and not so closely freckled as the blackbird's, sometimes inclining to pink, like those of the missel thrush. It breeds about Priormoor, Denino, and Kinaldy—three or four miles from St Andrews. About three o'clock in the morning on June 4th, 1888, when hunting after two young cuckoos, a fine male was shot on a whin near its nest at Priormoor, near the old quarry. I have a female stuffed, shot at Kinaldy, September 7th, 1857, and, to show they remain all year, two were seen in Denino Den on December 26th, 1892. Four were shot one day in April near the Rock and Spindle at Kinkell Braes. But it is not common here. If we were to go to the uplands of Fife in search of this shy mountain bird we might wander long in vain. Regarding its peculiar migration, White of Selborne wrote in October 1768:—

"On an old yew hedge with berries some birds, like blackbirds, with rings of white round their necks, were seen last year, but as no specimens were got little notice was taken. But last week the same farmer, seeing a flock of twenty or thirty of these birds, shot two cocks and two hens, and said he saw these birds again last spring about Lady Day, as it were, on their return to the north. Now, perhaps these ousels are not the ousels of the north of England, but of the northern parts of Europe, and may retire before the frosts and return to breed in spring. If this be the case, here is discovered a new bird of winter passage concerning whose migrations the writers are silent; but if these are the ousels of the north of England, then here is a migration disclosed within our own kingdom never before remarked."

On being satisfied that they were indigenous in Scotland, with his usual shrewdness he says:—

> "If they came to spend the whole winter with us and left us in spring I should not be so struck, as it would be like other winter birds of passage; but when I see them for a fortnight at Michaelmas, and again for a week in April, I am seized with wonder, and long to know whence these travellers come and whither they go, since they seem to use our hills merely as an inn or baiting-place."

Which is quite true, for a partial or a complete stream of migration goes on every spring for breeding and every autumn for food—as already said, love and hunger rule the world—and Nature is so very full of creatures, their habits so various, that most is known where most is searched and studied. Such birds as the robin and tit leave their summer haunts in autumn and return in spring without leaving the country, so many of these ring-ousels (even from Norway), not content with Britain, pass on to the Continent and return again to breed in spring, for, as a rule, birds retire before the sun in spring and return in autumn, and the straggling parties seen on our Kinkell Braes in April were likely on their way to breed. The male shot at Priormoor in June was in splendid plumage—the white ring or gorget of the neck finely marked, the under side of the wings bright silvery white, wing coverts beautifully light grey, under parts black, margined with grey; general colour of the upper parts and tail, black; irides dark brown; legs and bill, blackish-brown; base of bill, yellow. The female is more tinged with grey, the ring less, and clouded with brown. In the young males the ring is reddish-white, and awanting in the young females. Instead of black birds or black thrushes, our blackbirds were called ousels by old poets—for instance, in "Henry IV.," Shakespeare makes Shallow ask—

> "And how does my cousin, your bedfellow?
> SIL.—Alas! a *black ousel*, cousin Shallow."*

The next in this order of affinity is another black bird or ousel with a white breast—the water-ousel or European dipper, in the

SUB-FAMILY MYIOTHERINA,

which, with the exception of the genus *Cinclus*, is not represented in Europe, hence called the *European* dipper, the rest being natives of other quarters of the globe—the little dipper being the only representative in Britain is, of course, the only one found near St Andrews. There are other three species, the *Cinclus Pallasii*, found by Professor Pallas; *Cinclus Americanus*, found in Mexico and the streams of the Rocky Mountains ; and the fourth in India.

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* Shax. says—"Ousel is a name common to birds of the thrush family. One is the European blackbird."

THE EUROPEAN DIPPER OR WATER OUSEL

(*Cinclus Aquaticus*).

(Sturnus Cinclus.) Linn. *(Turdus Cinclus.) Lath.*

(Merula Aquaticus.) Briss.

Thou dost not soar like yon proud bird,
  Whose song no poet fails to sing ;
Yet sweet in winter thine is heard
  O'er Kenly Burn and Dairsie spring.

Like the kingfisher, this bird long held an anomalous position amongst the perchers, as in habits it bears a greater resemblance to the divers ; for rivers, lochs, and streams are its resorts, and water its chief attraction, into which it runs and dives both for food and protection, but it does not plunge like the kingfisher, although it also flies with a direct and rapid flight. It frequents rivers as well as burns, mill dams as well as lochs—wherever aquatic insects, worms, or fresh-water mollusca are found it is there. It lives all the year with us. I have seen it at all times, summer and winter, in all the burns in the district—from the River Eden and the Moutrie Burn on the west to the Kenly and the Kinness Burns on the south and east.* It perches on a stone near the edge of the stream, walks into the water and dives in search of food, and returns to its perch, or flies off and alights in the middle of the stream, dives, and reappears up the stream ; again dives, then up again, floats, and dives again, and is as much at home in the water as the little grebe, using its wings as well as its feet and bill under water like the divers and other sea birds in its tireless search after its life preserver—food. When closely pursued, it runs even into a small stream as to a friend, and tempts the risk of being caught, like a guillemot in a harbour, rather than fly away. If wounded, it glides or plunges in, flies below the surface to the other bank, and, like the water hen, tries to conceal itself among the roots or stones. Although its short legs and curved claws are against its walking on land, and its feet unwebbed, it swims with ease; its curved claws assist it to cling to stones under water, and to slippery ones above it. Sportsmen and gamekeepers dislike this little stream-haunter, from the notion that it feeds on the ova and fry of trout and salmon, which has been proved to be fallacious, for Dr Macgillivray and others opened and inspected many of their gizzards for the express purpose of settling this question. The remains of fresh-water mollusca, beetles, worms, larvæ, aquatic insects, and gravel were found, but they never found the remains of fish or ova. Indeed it is more a friend than a foe to salmon fry and ova, as it feeds on the larvæ of *dysteseus*, of various *ephemera* and *phryganea*, and other aquatic insects, which devour all fry and ova they come across, as proved in aquariums. Therefore it is high time this winter songster was protected, and not ruthlessly destroyed through a mistaken idea. Macgillivray says—

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* I often see it along with the kingfisher at the Kinness Burn in winter, near the Shore Bridge.

> "I have opened a great number at all seasons of the year, but never found any other substance than *Lymneæ*, *Ancyli*, *Coleoptera*, and grains of gravel. As to the ova and fry of salmon, there is no evidence that the dipper ever swallows them; therefore the persecution of this bird should cease until the fact be proved. The mollusca form a chief part of its food, which accounts for all the subaqueous excursions of the species. The bird being destined to feed on aquatic insects and mollusca, which adhere to stones under water, is fitted for making its way to the bottom at small depths, and keeping itself there for a short time, therefore the plumage is short and dense; its tail abbreviated; its wings short, broad, and strong; its bill unincumbered by bristles, and of the proper size for seizing small objects, and detaching them from stones; its feet like those of the thrushes, but stronger; it forms a connecting link between the slender-billed land birds and the divers, as the kingfisher seems to unite them with the plungers of the same order."

As proof of this, an old dipper, like an old oyster-catcher or a turnstone, is easily known by the point of its bill being blunted in searching for food amongst stones. Although in habits it is liker the divers than the thrushes, still, after careful analysis, Vigors and Swainson found it to be connected in direct affinity with the *Myiotherina*, hence with the thrushes, even in song, only it sings in winter when the thrushes are silent. I have heard it sing in December and January at Eden and the Kenly Burn. On the 21st December 1871 I saw several below Dairsie Bridge alighting on stones. One sang beautifully, very like the clear loud song of the mavis, but shorter and more staccato. I sat on the bank of the Eden and listened with great pleasure as its sweet notes rang through the frosty air, wondering if the fabulous Eastern Paradise ever rang to a sweeter strain—and yet, I thought that the hiss of the gander was as dear to Nature as the song of the sweetest thrush, or the hallelujah of the divinest harmony. As a proof that others think the same, the *Scotsman* of 8th January 1883 says :—

"On the last day of the year, when taking my Sunday afternoon walk, I sat on a stone to rest, close to one of our suburban streams, a water ouzel or dipper settled on an adjacent stone, and, after preening its feathers, commenced a most pleasing warble, and sang most melodiously for at least a quarter of an hour. He then resumed his search for food in the stream. I watched him with much interest, his body was seldom quite submerged. He was feeding on the larvæ of insects and small crustacea with which the stream abounds." "I visited the same spot this afternoon, January 6th, and there was my little friend again in full joyous song as before. He allowed me to get within 26 yards of him, and I listened to his exquisite warbling from 3.30 till 4.10, when, darkness coming on, I left, much gratified with the renewal of our acquaintance."

"The song has not the mellowness of the blackbird, nor the power of the thrush, but consists of a few sharp staccato notes at intervals, combined with the most varied and pleasing warble; a few notes like those of the skylark when descending.

"The reason why the song of this bird is so little known is that it always sings close to streams, where its voice is drowned by the sound of running water; but to lovers of birds it is worth some trouble to listen to its cheerful song. I have heard it as late as August, but was not aware till now that it sings in winter.

"Birds' songs are rare enough at this season, and it is a sad pity that the little harmless dipper should have an army of keepers as enemies, from a mistaken idea that it destroys salmon ova, while, in reality, it is a friend to the salmon fisher by feeding on the larvæ of dysteseus and other creatures which destroy the ova. I therefore plead, through your columns, for our little feathered songster, my warbling little friend, the streamlet-haunting dipper."

So that, as Tennyson says—

"Song may possess the atmosphere,
And fill the breast with purer breath."

And, as we listen to the cheerful song of the little dipper in winter by the banks of a lonely stream, may we also say with him, it

"Moves us to think what kind of bird it is
That sings so delicately clear, and make
Conjectures of the plumage and the form."

Then, if the dipper is spared, as Burns makes Bruar water say to the Duke of Athol—

"Delighted doubly, then, my Lord,
You'll wander on my banks,
And listen mony a grateful bird
Return you tuneful thanks."

On June 16th, 1884, an angler, fishing in the Kale with fly, three hooks on his line, having made a wrong cast, he jerked his line to make a better throw; in doing so he hooked two dippers which happened to fly up the stream at the time. Both were caught by the thighs. After gently freeing the one on the "tail fly," he freed the other on the first hook, when, strange, after being free, this bird in circling round was again caught, this time on the "tail fly," from which its mate had just been freed. It was again set at liberty, apparently no worse for its double capture.

It breeds early in April, on the bank of a stream, the fissure of a rock, on a ledge under a waterfall, or in a rough hole in a mill dam—sometimes so close to the overflow that the spray falls over its dome-built nest, which is large for the size of the bird; composed of moss felted together, roofed over, leaving a hole in the side like the common wren's. It is lined inside with strong grass, and an ample layer of dried leaves—chiefly of beech or oak, which forms a cosy lining. The size varies—one I measured was 10 inches from front to back, 8½ broad, and 6 in height over all. The entrance hole is usually in front, nearer the bottom of the nest, the little doorway is about 3¼ inches wide by 1½ high, kept smooth and even for the birds' curved claws to pass easy in and out. They lay four, five, sometimes six, pure white eggs, less and more oval than those of the mavis. The domed nest makes the bird liable to be caught; sometimes she allows herself to be taken out when sitting on eggs, and, when replaced, continues her incubation. One was caught on her young, and though some of her worn tail feathers were pulled out she returned in a few hours and fed her young, and as the male was shot she brought them up herself until they flew. I knew a nest on the 10th of April 1879, at the Kenly Burn, with three fresh eggs which were taken; eight days after other six eggs were taken out of the same nest, next week another three were taken—being twelve eggs out of the same nest by the same birds; as it was not again visited I do not know how many more she might have laid. I know another instance where twenty eggs were taken out of one nest. Next April (1880) another nest was got on the Kenly, near the same place, with four eggs—this time the nest was pulled down and destroyed; a fortnight afterwards other four eggs were taken out of a nest in the same spot, no doubt rebuilt by the same pair, which proves the attachment of the dipper to particular spots for its nest. I got another nest further up the burn, below an overhanging bit of the bank, near a waterfall; it was only reached by getting up on the shoulders of another man. Four different dippers' nests were got on the Kenly that year. Next year I got a nest with five deep-sitten eggs on the 17th of April, and on the 4th of May 1889, although a bleak spring, I got a nest with four nearly ripe young ones in Bonnytown Den on Kenly thus early, and on the 25th of May there were raw young ones in the same nest. They return year after year to the same place, which is peculiarly well adapted for them, as the bank of the burn and tree roots overhang, and the burn runs below. They have two, often three broods in the year. Further down the burn I got another nest with four ripe young ones. On the 8th of June four eggs were taken out of a nest where the young ones flew; the nest was lined with dry grass, and on the 20th of June there were another four eggs in the same nest, this time lined with dry leaves, presumably by the same birds. One of the nests was built on a bare sloping face of the rock, so artfully composed of moss, dried grass, and leaves that it looked just like a natural tuft growing on the rock. The length of this interesting aquatic bird is 7¾ and 12¼ inches in extent of wings. The general colour of the male on the back is black, the feathers margined with grey; head and back of the neck, umber-brown; throat, eyelids, sides of the neck, and upper part of the breast, white; lower part of the breast and belly, chesnut-brown, shading to brownish-black towards the tail; bill, blackish-brown; legs, yellowish-grey; irides, yellowish-brown. The female similar, except the head deeper brown, and the white on the neck and breast not so pure. The young are grey on the head and back of the neck.

The next sub-family in this arrangement is

THE ORIOLANA.

Genus, ORIOLUS. *Temn.*

THE GOLDEN ORIOLE. (*Oriolus Galbula.*) *Linn.*

Although there is a group of these lovely birds, this is the only species found in Europe, and very rare in Britain.

Macgillivray says, "No authentic case of its occurrence in Scotland has been recorded," which, if true in his day, is not so now, for the *Scotsman* of October 24th, 1892, says :—

> "In deer-stalking on the Swordale Hills, Mr Brotherstone brought down the most valuable *rara avis* of this year's shooting, in the shape of a roller bird, reckoned to be a very rare visitor to the British Isles, although common on the Continent, whither it migrates in spring from South Africa and returns in autumn. The specimen shot at Swordale, on the eastern shoulder of Ben Wyvis, is a beautiful bird, the tints of the plumage, under and over the wings especially, being remarkably rich and variegated. Very few specimens of this bird have been got in these islands during the past number of years, so that naturalists may be interested to hear of its visit this season to the Ross-shire Highlands."

But as I never saw it about St Andrews, a brief description will suffice. It is about the size and form of the blackbird, though its tail and feet are shorter and its wings longer. Its likeness to the thrushes has caused it to be named the golden thrush by some authors. The general colour is a rich golden yellow ; the wings, brownish-black, except the smaller coverts and the margins of the quills, which are yellow ; the tips of the primary and all the quills, except the two outer ones, also bright yellow ; the tail, black, yellow at the end. The space between the bill and eye, black ; bill, light red ; iris, red ; feet, bluish-grey ; claws, reddish. The female similar, but not so bright yellow. Food—the same as the thrushes. It builds on trees ; the nest composed of long straws or grasses interwoven ; inside, moss and lichens, and lined with fine grass, sometimes wool, but no clay or mud. The eggs five, smooth and white, with a few brown spots.

FAMILY IV.

SYLVIADÆ, OR WARBLERS.

The *Sylviadæ* are small birds, distinguished by elegance of form and delicate structure of bill. Like the rest of the families of the *Insessores*, the *Sylviadæ* is divided into groups, called sub-families—1, the *Saxicoliana*, or stone-haunters, which forms the link between the thrushes and the warblers ; 2, *Philomelina*—including the nightingale—noted for power of song ; 3, *Sylviana*—including the golden-crested wren ; 4, *Parina*—represented by the tits ; and 5, *Motacillina*—including the wagtails. I begin with, first,

SUB-FAMILY SAXICOLINA.

This group contains the three chats, the robin, and the redstart; from their length of tarsi and structure of feet they are as well suited for running as for perching—therefore the typical species are as much at home on links and downs as amongst trees; their food consists of insects, larvæ, and worms—in fact, like all creatures, they live upon anything they can catch, kill, and swallow less and weaker than themselves.

THE WHEAT-EAR, OR WHITE-RUMPED STONE CHAT.

(Saxicola Œnanthe.) Bechst. *(Motacilla Œnanthe.) Linn.*

> "Those gloomy downs
> Had charms for him, and here he loved to sit;
> His only visitants, a straggling sheep,
> *The stone chat*, or the glancing sandpiper.'
> —*Wordsworth.*

This lively bird is one of our earliest summer migrants. I have seen it on our Links in the end of March (which is very early). It is also one of the last to leave us, and passes the winter near the Mediterranean—chiefly in Africa. It frequents sandy downs, moors, and fallow fields, where there are turf or dry-stone dykes. Therefore the wide extensive heath and sandy downs of Tentsmuir, and utter loneliness, is a favourite resort of the wheat-ear, whose only companions are some straggling sheep, the frisking rabbit, or the various sea fowl. Like all the chats, it has a peculiar habit of jerking its tail up and down, and sharply piping "*peep, chick, chack*," like two stones struck together, by which and its white rump it is easily known, hence its names of *stane chack* and *white rump.* In Gaelic it is called *clacharan*, or the little mason. But, besides chick-chack, it has a sweet little song while perched upon a stone or dyke, and often while hovering above its mate. On May 1st, 1856, I found from personal observation that the "wheat-ear sings a very sweet and somewhat loud song; for I saw two alight on the tops of the white birch trees in the 'Old Fir Park' at

Tentsmuir, where the male sang beautifully on branches 20 feet high." I noted this at the time, as I had never seen them perch on trees before. It sings sweetly in a cage, in winter as well as summer. It may be heard during summer on our own Links, but is getting scarcer. It breeds in deserted rabbit holes. On May 22nd, 1858, I got a nest in a rabbit's hole on the Links, with five fresh eggs. The nest was 18 inches in, the hole barely admitted my arm. It was composed of dry grass, fine roots, a little moss, some wool, two pieces of worsted, and profusely lined with large feathers, averaging 3 inches long. It was like the nest of the bank swallow, but larger. The eggs, when fresh, are light blue, but when blown are nearly white, not speckled. They generally arrive with us about the middle of April. On May 31st and June 5th I saw young broods flying on Tentsmuir. To make certain, I shot one. They have the same cry of *chick-chack* and jerking of the tail as the old birds. Where there are dry stone dykes, loose stones, or old quarries, it makes its nests under the stones or in holes in the dykes. If so, it is most difficult to find, as it creeps to it through holes and crannies a long way from the place, and is ever on the alert. It always alights on the top of a small hillock, stone, or wall, where, if it spies an intruder, it gives its *peep*, *chick-chack*, and is off to the next height, showing its white rump as it flies. Its food is insects, larvæ, worms, and small mollusca. It has two broods in the year, the end of May and July. The old birds and most of the young moult before they leave us for their winter haunts. It is a handsome and rather pretty bird, and draws attention as it flits over the links and downs. The upper part of the head, neck, back, and scapulars are fine ash-grey, each feather tipped with light brown; the forehead, white; a band of white extends beyond the eye—a black band runs under the eye and cheeks; the rump and upper tail coverts, white. The front of the neck and breast, pale cream colour; the rest of the throat and lower parts, greyish-white; the tail, white at the base, brownish-black at the end; wings, bill, feet, and claws, black; iris, brown. The female similar, but not so well defined. Length, 6¾ inches; extent of wings, 12½ inches—the size of the lark. They assemble in large numbers in September, previous to departure, on the Sussex and Dorset Downs, next the coast, where, about Eastbourne, the number caught annually is astonishing—Pennant says no fewer than 1840 dozen. They are caught by placing two turfs on edge; at each end a small horse-hair noose is fixed to a stick, which the birds, in search of food or shelter, in attempting to get under, are caught; or by cutting out a piece of turf about 11 inches by 8, and 6 thick, which they lay over the hole, leaving sloping entrances, and setting the noozes under the turf. One shepherd and his lad will have from 500 to 700 of these traps, and as many as 84 dozen caught by them in a day. They are sent for sale, at a penny each, in great quantities to Briththelmstone and Tunbridge, and as they are caught in the time of wheat harvest, they take their name of wheat ear. One curious thing is, although thus caught in thousands on the south downs round Lewes and Eastbourne, they are never seen in flocks, only three or four at a time—a characteristic proof of their perpetual flitting about and constant succession before migration. A few remain in the south of Britain all year.

THE WHIN CHAT.

(*Saxicola Rubetra.*) *Bechst.* (*Motacilla Rubetra.*) *Linn.*

> "My lord a-hunting he is gane,
> But hounds or hawks wi' him are nane;
> By Collins' cottage lies his game,
> If Collins' Jenny be at hame."
>
> —*Burns.*

Like the preceding, this is a summer migrant, but about a month later in coming—seldom before the middle of April. Instead of the whin chat it should be named the grass chat, as it is more partial to thick grass meadows and furzy commons than whinny links or downs; is rarer on our links and adjacent country than the white-rumped or the black-headed stone chat. As it haunts moorland and commons overrun with low shrubs, where *whins* are highest, and as it always alights on the highest twig—hence its name of whin chat; but the three species derive their name more from their cry of *chit-chat*, or *chick-chack*, than from where they breed, for I have seen all three breeding in one locality; and, with propriety, might each be named the white-rumped, the striated, and the black-headed chats; as the wagtails are called the pied, the grey, and the yellow, from their habit of wagging their tails. Linnæus was not far wrong in classing the tail-jerking chats with the wagtails.

Its nest is artfully concealed amongst long grass, near the roots of a furze-bush or whin, composed of dry grass and roots, with some moss, lined with finer grass and hair. Like all nests on the ground, it is loosely put together and pretty large, eggs usually six, light greenish-blue, sometimes with reddish dots. It jerks its body and tail, and utters the same sharp stone-struck cry of *chick-chack*. It also has a sweet low song—not so loud as the wheat-ear's, but, like it, sings on the wing. Its food consists of coleopterous and other insects and larvæ. It is less than the preceding, 5¼ inches long by 9¼ inches in extent of wings; its tail shorter in proportion. It has a distinctive white band over the eyes; cheeks brownish-black, upper parts light yellowish-red, streaked with brown; throat and streak on side of neck, white; crown of head, back, and wings brownish-black, each feather margined with yellow; rump, brown; base of tail, white; under part of throat and breast, pale-brown; belly, yellowish-white; iris, brown; bill and feet, black—female with the dark spots larger and the white less conspicuous.

THE STONE CHAT, OR BLACK-HEADED BUSH CHAT.

(Saxicola Rubicola.) Bechst. (Motacillo Rubicola.) Linn.

> "Eve's mild hour invites my steps abroad;
> While, near the midway cliff, the silvered kite
> In many a whistling circle wheels her flight,
> And *restless stone chat is* heard."—*Wordsworth.*

Unlike the other two, this is a native, stays all year with us, and is more common on our links and Kinkell braes than the preceding; but in habits, nidification, and food it resembles the last—always alighting on the highest twig, jerking its body and emitting the same sharp cry of *chick-chack*. It also has a low sweet song when perched on the top of a twig or when flying. When disturbed it flits quickly from twig to twig, flies low, and warily keeps out of range—as already remarked, it might as well be named the furze chat as the stone chat. Like most of our native birds it breeds early, generally in April, and, like the last, conceals its nest under the herbage near the roots of whins or low bushes; it is made of dry grass, lined with finer grass, wool, hair, and feathers. The eggs, five or six, also pale greenish-blue, speckled at the larger end with light brown specks. The eggs of the three chats bear a marked similarity, from which they might be identified, as well as by their cry or fidgety jerking of tail and body and restless flight. It is about the same size as the last, 5½ by 9 inches; tail and wings shorter. Like many birds, the male has a summer and a winter dress. In spring the head and throat become black (from which it takes its name). Sides of the neck, upper parts of the wings, and rump white; front of the neck and breast light brownish-red; back black, feathers edged with light brown; wings and tail, brownish-black. This is its courting garb, for at this time the head is jet-black and the breast almost as red as a robin's, which bird it resembles; in autumn and winter the head and throat become brownish-red, and the breast darker red. The female similar to the winter plumage of the male; iris, brown; bill and feet, black.

If the white rump's nest is ill to get, this one is worse, for it is often in the centre of a clump of whins or furze, near the roots, and covered with long grass. I have been baffled to find it, though I knew I was near it. On June 14th, 1855, I saw a pair on the outskirt of whins at Priormuir—the female had food in her bill for her young; yet, although I waited an hour watching, she would not go to her nest, but, along with the male, restlessly flitted from twig to twig—both of them *chick-chacking* all the time, so, fairly baffled, I left. On Tentsmuir, in May, I have watched them, in the midst of heather, flitting from twig to twig of the highest heath in the middle of the Muir, where there was neither whin, shrub, dyke, or stone for miles around—yet I was baffled, the birds are so restlessly wary, and their nest so artfully concealed, which proves that the name of *stone* chat does not apply, at least on Tentsmuir. In severe winters I have seen fifty flitting about the west sands and at Eden, in small parties of four and five. I shot two on December 13th, amongst the sea-weed close to the links. I stuffed them, and have them still. It had been frost for a week, and the country covered with snow, which shows that the sea-beach is a God-send to birds in hard times. On the 26th January, I shot a male on a heap of manure near Guardbridge; and on February 3rd, I saw several on the west sands, near a flock of snow buntings. I merely mention these facts, as Macgillivray and others say they are rare in Scotland in winter, which proves that at certain times they are not so about St Andrews. The next allied genus is *Erythacus*—the robin being the type, and the only representative in Britain.

The Robin Redbreast.

(Motacilla Rubecula.) Linn. *(Erythaca Rubecula.) Selb.*

It was a clear November day,
A'maist as clear as June or May,
When first I heard that winter's lay,
The robin's sang,
When sitting on the auld pear's spray,
Its sweet notes rang.

Though the robin bears a resemblance to the black-headed bush chat, there are no two birds more dissimilar in habits. The one is open, frank, and trusting—even pert; the other wary, wild, and shy. But, like the chat, it is equally at home perching on trees as hopping on the ground; is also native, and remains with us all year, and is one of the few birds that sings in winter, which Burns notes in his "Brigs of Ayr"—

"Nae mair the grove with airy concert rings;
Except, perhaps, the robin's whistling glee,
Proud o' the height o' some bit half-lang tree."

I wrote some trifling lines on hearing one in winter in my little garden—

For winter has its cheerie note,
Frae little robin redbreast's throat,
As weel as simmer—though afloat
On ilka twig,
And Nature busks her bonnie boat
Wi' leafy rig.

The auld pear tree was almost bare—
A withered leaf just here and there;
The apple trees had twa-three mair
O' leafy claes;
But, faith, that robin didna care,
But chirmed his lays.

I stood an' listened 'neath the tree,
Whase pow was bare as bare could be;
Yet, faith, the redbreast wouldna flee,
But sweetly sang,
As if he fain would say to me,
Sing a' year lang!

But his winter song is not so powerful as his summer one, when singing to please his little mate sitting cosy on her eggs in a bank or the root of a hedge—when, as Burns says,

"The soaring lark, the perching redbreast shrill,
Or deep-toned plover's grey whistle o'er the hill."

Tennyson truly says—

> "In the spring a fuller crimson comes upon the robin's breast;
> In the spring the wanton lapwing gets himself another crest."

His winter song is more of a pleasing warble than a passionate love-song. In comparing himself to the feathered robin, Burns says to his patron, Graham of Fintray, about politics—

> "For, your poor friend the bard, afar
> He hears, and only hears the war—
> A cool spectator purely;
> So, when the storm the forest rends,
> The *robin in the hedge descends*,
> And, sober, chirps securely."

Of all birds the robin is the most popular. In winter it seems to take us into its confidence, with something like the use of reason; its shy, yet pert, hopping near us, with quick jerk of tail and intelligent black eye have something in them I have not observed in any other bird. Its apt selection to cover the babes in the wood in the pretty fairy tale is a happy one—for the good feeling begun in the nursery follows us through life. Even Wordsworth, that poet of philosophy, exclaims—

> "O, pious bird! whom man loves best."

It is a self-reliant, solitary bird, never congregating—even in winter; but each, with a noble spirit of independence, leaves its summer haunts, draws to the proximity of man; and, like Hal o' the Wynd, fights the battle of life single-handed, instinctively trusting man. It will hop on a window sill, fly into a room, and pick up crumbs from his table; and, when hard pressed, if it sees a man eating amongst snow, it will sometimes hop near him—like Nature's beggar—expecting the proffered crumb. It is more afraid of a dog than a man. One visits us regularly each winter in our boat-shed at the harbour, comes quite close, and hops on the bench beside us; and, what would be deemed pert impudence in the sparrow, is called trusting confidence in the robin. On 14th December 1878, a severe winter, when the ground was covered with snow, on going out to Kinkell by the sea-beach, I passed several redwings lying dead. On resting at Boarhills lifeboat-house to give my dog some bread, a robin eyeing the tempting "staff of life," hopped close to my feet and would have picked up the crumbs, but was afraid of the dog. I held out my hand with crumbs, and it flew up and fed itself. I left some on the snow and resumed my journey. I do not know if that severe winter had anything to do with where the robins built their nest, only I found them in spring closer to our dwellings than I ever saw them before. I got a nest with seven eggs in an old canary's cage, which was hung up in the unused washing-house at the West-End Infants' School, the door kept ajar by an old sack. The robins had eyed the little wire prison, and fearlessly built a very large nest in the bottom of it. I found another on the top of a coal-house door lintel at the foot of Queen Street—the hen sitting on five eggs. Another, with five young ones, in a greenhouse. The hen sat sheltering her young while the gardener watered his plants. They got leave to fly. But, even in summer, as Tennyson says—

"The robin eyes the delver's toil."

Many poets write lovingly of our little friend ; one says—

"Half afraid, he first
Against the window beats ; then brisk alights
On the warm hearth ; then hopping o'er the floor,
Eyes all the family askance,
And pecks, and starts, and wonders where he is ;
Till, more familiar grown, the table crumbs
Attract his slender feet."

Or, as Southey makes his "Exile" exclaim on looking back on happier days—

"Still wilt thou haunt me, memory ! Even now I see
The lowly lovely dwelling ; even now
Behold the woodbine clasping the white walls,
Where *fearlessly the redbreasts chirped around*
To ask their morning meal."

In his poem on "Contemplation" he also says—

"Faint gleams the evening radiance through the sky,
The redbreast on the blossomed spray
Warbles wild his latest lay."

And to show it carries its trust in man further than merely picking crumbs off his table, the late Dr Spence, editor of the *Evangelical Magazine*, had a pet robin which visited him daily about meal times, entering by the window. The *Standard* says—

"Having eaten with them, it rewarded his host with a song before taking flight. He introduced another bright-eyed intruder, who became as confiding as the other. Attracted by their frequent visits to the cornice, the Doctor mounted a pair of steps and discovered their nest in course of building. The window was now left open, the nest finished, and the eggs laid ; and as she sat the clear intelligent eyes of the bird were seen gazing fearlessly at the occupants of the room. In about a fortnight the male entered as usual, flew to the nest, and began a series of shrill cries, flew round and round the room in excitement, finally settling on the top of the pier-glass and carolled forth a song. Wondering what was up, an

> examination was made, and there lay the naked, helpless cause of the father's glee, his new-hatched offspring just ushered into the world. After a day or two a more curious thing took place, for the two parents introduced a third robin, which at once assisted them in bringing up their young, nor halted until they could fly, and even assisted in their flight."

This was out of the usual course of science, but it shows the deviations of unerring Nature. Might not this little incident of life in a robin's nest suggest that a study of the inner life of birds might reveal something which the scientist in his merciless search for the *principle* of being can never dream?

I know another deviation in which the pugnacious little robin actually frightened and drove a cat away from her young. In trying to fly, a young robin fell on the grass—a cat seized it in its mouth and was running off with it, when the young bird giving a cry, the old one dashed at the cat with such fierceness that she dropped it, backed up against the fence, and showed fight. The old bird, not a bit dismayed, with bill wide open, feathers ruffled, and screaming with rage, struck the cat twice, which was so frightened that it ran away and crawled under a hedge. And as a proof of its intelligence, I knew a robin's nest amongst ivy on a wall that was to be taken down. To save the eggs the nest was placed in a neighbouring bush; the birds seemed to understand the kind intention, for they sat on the eggs and reared their young till they flew. When making alterations at Abbey Park in 1890, a pair built in one of the rooms where I pulled out a lintel, and reared six young ones. I had difficulty in getting the fledglings out of the house, as they flew from room to room, not knowing how to get out without my help. The robin lays in April; but, as already said, mildness of season regulates this, for I have got their eggs in January. They generally make their nest on the ground in a bank amongst hedge roots, but the places vary. I have got them in all situations, from a hole in the stump of a tree, flush with the ground, to a branch pretty high up. In 1885, two were got amongst club-heads in Tom Morris' drying-shed at the Links; and to show their ingenuity, if not intelligence, I got one with eggs on a tree in front of a livery stable in 1881, which was steadied by threads to the branch above—like the rigging of a ship—as if the birds had known it was not so secure as on the ground, like one I knew under the rails of the N.B. Railway, near Springfield, where the hen did not fly when the wheels passed over, but coolly sat on her eggs. So we see there is no particular place for birds' nests. I knew of one in a laundry-maid's old bonnet, in which the young were reared till they flew;

also one in a miller's cast-off coat, filled with young ones; he never knew of them until he put his hand in the pocket. A pair were kept in a garret, in the severe winter of 1878, till April, then set free—a few days after their nest was found with eggs in the garret, composed of stalks of horehound, which had been hung up to dry, lined inside with the down of some ragwort kept for a bullfinch. They did not desert the locality, but built another nest in the garden close by. The male sang sweetly in the garret, sometimes the hen sang also. The nest is composed of dry leaves and moss, framed with very small roots, dry grass (sometimes worsted), and lined with hair. Eggs—five, six, or seven—reddish-white, freckled with purplish spots at the larger end. As he is so well-known, I need not minutely describe our red-vested little countryman the robin, nor his plainer dressed little wife. They have two, sometimes three, broods in the year. They are, like the rook, omnivorous in their food—from crumbs to worms, larvæ, and fruit. In old times the wren was considered the female; for instance

"The robin and the wren
Are God's own cock and hen."

And an old legend says he got his breast stained when plucking thorns from Christ's brow on the Cross. It is also said that St Kentigern (who founded Glasgow Cathedral) made the robin a subject for miracle; for, having a pet one whose neck was wrung by boys, he restored it to life; also, as the bird-Prometheus, it brought down fire from Heaven to man—hence the red colour of its breast; and we all know the prettier legends of its covering the dead with leaves; for instance, Webster says—

"Call for the robin and the wren,
Since over shady groves they hover,
And with leaves and flowers do cover
The friendless bodies of unburied men."

Herrick also says—

"The redbreast be
The sexton for to cover me,
And while the wood nymphs my cold corpse inter,
Sing thou my dirge, sweet warbling chorister."

Stafford, too, in "Niobe dissolved into a Nilus" (in 1611), says—"Robbin waits in his red livery, who sits as a crowner on the murthered man, and, seeing his body naked, plays the sorrie tailour to make him a mossy raiment." And when Hotspur, in

Henry IV., asks his wife, Lady Percy, to sing, he gives as his reason—

"'Tis the next way to turn tailor, or be redbreast teacher."

Shakespeare only mentions it thrice in his works; the second time in the "Two Gentlemen of Verona," by making Speed say he knows Valentine is in love, because he "relishes a love-song like a robin redbreast;" the third time in "Cymbeline," where he calls it the "ruddock," which is to cover "Fidele" with flowers—as it did the "babes in the wood," for Arviragus says—

"With fairest flowers,
Whilst summer lasts and I live here, Fidele,
I'll sweeten thy sad grave; thou shalt not lack
The flowers that's like thy face, pale primrose; nor
The azur'd hare-bell, like thy veins; no, nor
The leaf of eglantine, whom not to slander,
Out-sweeten'd not thy breath; the *ruddock* would,
With charitable bill (O bill, *sore-shaming*
Those rich-left heirs that let their fathers lie
Without a monument!) bring thee all this;
Yea, and furr'd moss besides, when flowers are none,
To winter-ground thy corse."

For doing all these good deeds one poet says—

"Him that harries their nest
Never shall his soul have rest."

And Blake crushes all the sentiment about the robin, in a short but furious form, when he says—

"A robin in a cage
Puts all heaven in a rage."

John Bunyan also, in his "Pilgrim's Progress," is its friend, for he says to the Cuckoo—

"Thou booly! say'st thou nothing but cuckoo,
The robin and the wren can thee outdo."

Although Wordsworth, in his poem of the "Redbreast Chasing the Butterfly," was quite vexed to think that "such a pretty little bird—a bird above many that loveth to maintain a kind of sociableness with man, could be so cruel"—

"O, pious bird! whom man loves best,
Love him, or leave him alone."

Meaning the butterfly—a thing impossible in Nature, for as a rule it is the strong preying upon the weak all the world over.

The next allied genus in the sub-family, *Saxicolina*, is the *Phœnicura*—the Redstarts.

THE COMMON OR WHITE-FRONTED REDSTART.

(Motacilla Phœnicurus.) Linn. (Sylvia Phœnicurus.) Lath.

> "A little, helpless, innocent bird,
> That has but one plain passage of few notes
> Will sing the simple passage o'er and o'er
> For all an April morning, till the ear
> Wearies to hear it." —*Tennyson.*

Three species of redstarts are summer migrants to Britain, but this is the only one that visits St Andrews. It arrives about the end of April in south-east winds, along with the flycatchers, whitethroat, and blackcap, and leaves in the end of September. It frequents gardens, near rough old walls, like our old Abbey wall at the south-east side of the city, in the holes of which it makes its nest. In June 1892 I got a nest with six eggs, in a hole at the top of the wall opposite Abbey Villa, near the Burgh School. It was also spied by the boys and harried. It also breeds in the holes of old trees near woody thickets; sometimes in the hole of a summer-house, or on a shelf in a tool-house—loves to be near man—but it is not common here. The nest is made of dry roots and moss, lined with hair and some feathers. It lays six or seven light greenish-blue eggs, less than the hedge-sparrow. In habits it is like the flycatchers—so much so that it will contend with them for the same hole for their nest, they having been known to kill each other in doing so. It also lives on flies, which it catches on the wing. It is surprising the number it consumes, for it has been tested that a redstart in a cage can eat six hundred flies an hour; but equally voracious are all insectivorous birds, owing to the small quantity of nutrition in insects—the greater part of which pass undigested. It has a low, short, sweet, but imperfect song, something like the whitethroat's—which the male, perched on the top of a tall tree or post, will sometimes sing over and over again from dawn till dusk. This pretty, lively little bird is easily known by its black throat and well-marked white forehead. The top of the head, upper part of neck and back are deep bluish-grey; the breast, sides, rump, and tail (except the two middle feathers) are fine reddish-orange—hence it is sometimes called the red-tail, which, however, instead of bobbing up and down like the wagtail, it shakes from side to side like a dog. The bill and feet are black; iris, brown. It is a beautiful bird, 5¾ inches long and 9½ in extent of wings. In April 1886 one was shot at Cameron; another at Kittock's Den, Kinkell, in June same year; and on June 3rd, 1887, I got a fine male from a fisherman, which I have stuffed. It flew on his boat, and was caught quite exhausted, and died soon after—about thirty miles east from the Bell Rock. It had likely been driven to sea by a gale, and unable to regain the land; which proves that our short-winged summer migrants are bad flyers—unable to beat against adverse winds—hence they generally come to us with a south-east wind. It was in fine condition. The female is similar to the male, but the colours not so rich.

The other two species—the black-breasted (or Tithy's redstart) and the blue-throated are rare in Britain; and as I never saw them here, I need not describe them further than that the first is like the common one without its white frontal band, and having its breast black instead of red, and its eggs pure white. The other has the crown of the head umber-brown, instead of bluish-grey; the throat and upper part of the breast rich azure-blue, instead of black or red; but its eggs are greenish-blue, like the first.

The next sub-family of the *Sylviadæ* in this arrangement is the *Philomelinæ*, which includes the nightingales and warblers, of which the genus *Salicaria*, or aquatic warblers, are the first.

SUB-FAMILY. PHILOMELINA.

Genus, SALICARIA—AQUATIC WARBLERS.

This genus derives its name of *aquatic* from frequenting reedy marshes and damp underwood, overgrown with furze and brambles, where the species live concealed, seldom appearing on the upper branches, but keep to the under and closest parts, through which their long sharp claws, low and narrow heads, enable them to pass with great dexterity and speed—like sand-eels amongst sand, or a field-mouse amongst corn. Their usual flight is low, merely from bush to bush. Their food chiefly insects and larvæ.

THE GRASSHOPPER-WARBLER, OR CHIRPER.

(Salicaria Locustella.) Mihi.

> "The happy birds that change their sky
> To build and brood; that live their lives
> From land to land; and, in my breast,
> Spring wakens too; and my regret
> Becomes an April violet,
> And buds and blossoms like the rest."—*Tennyson.*

This is a late summer migrant, seldom seen in Fife before the first of May, and leaving in the end of September. It gets its name from its low chirp or warble, like that of the larger grasshopper or mole-cricket—*Grylla Talpa.* It is not common here, and is still rarer by its artful and peculiar habit of concealment —wriggling like a mouse through the closest brambles or other underwood. Its low, narrow-pointed head enables it to do what no other bird can, while its plain colour also helps it from being seen. Its slender and elegant form is also in its favour. I have seen it on the banks of the Eden, near Dairsie Bridge; also on the Kenly Burn; and at the old fir-park wood on Tentsmuir amongst rashes. But as it lays in the very heart of brambles, furze bushes, or under the herbage, its nest is seldom found; but when so few are got, and so seldom harried, the wonder is they are not more common. Lying on the north bank of Eden one day, near Nydie, I watched one, and got its nest with eggs in a close hedge about three feet from the bank: the eggs were $\frac{11}{16}$ by $\frac{5}{16}$ of an inch, larger than the sedge-warbler's—*Salicaria Phragmites;* the nest was lined with moss. It is loosely formed, like the whitethroat's, generally composed of the ladies' bed-straw *(Galium)* and moss. The eggs are five or six, sometimes seven, flesh-coloured, freckled all over with carmine specks—easily known from any other species. To show how difficult it is to find their nest, Mr Hewitson tells how a keen egg-collector, after long watching, eyed the bird at the distant passage to its nest, which was at the bottom of a deep, narrow ditch, overhung by the whin, and grown over with thick coarse grass, matted together year after year till two feet high. He searched until tired; and saw there was nothing for it but to take away the whin and grass piecemeal, which he did before he got the nest. The Rev. Mr Turner of Uppingham says—

> "Having thrice got the nest, and closely watched, I can give particulars of the habits of this skulking bird. The first nest was in the middle of a small plantation of young trees. Out of a tuft of grass, overhung by a bramble and small white thorn, I saw something hop, and immediately drop into the herbage. I carefully searched the tuft, and all round—but in vain. I returned to the spot; there was the same hop and away—but so quick I was not sure if it was a bird or a mouse. I repeated my search for a nest, but with no better success than before. I sat down to watch—I saw the grass move, and then a *Locustella* came threading through the grass within arms length of me; but, eyeing me, retreated. Convinced its nest was there, I took my knife and cut away the herbage near the tuft, then cut the tuft itself, and, in the very centre of it, in a hollow of the ground, I found the nest entirely concealed, without the slightest appearance of ingress or egress. I was so struck with what I saw that I again sat down, and the same stealthy movements to and fro were repeated. The other two I detected in the same way in open places of a large wood; their situations also in the very centres of large tufts of coarse grass at a depth of fifteen inches from the top. In both cases the female did precisely the same as described; she never rose on the wing, probably never flies to or from her nest, but threads her way through the herbage just like a mouse, and thus effectually prevents everything that could lead to the discovery of her nest. The nests were entirely of dry grass, finer internally. In the first was a little moss."

In such situations they are loosely constructed on the ground. These descriptions remind one of the willow wren, which also nestles under the herbage—the nest of which I have often found by watching the bird, with feathers in her bill, during its construction. Like the corncrake, this warbler is a ventriloquist—one moment it seems close at hand, the next a hundred yards off, without shifting its position, and will sing its grasshopper chirp of a song within a yard of you, if concealed. Indeed, this singularly artful bird, as if to irritate and defy you, will chirp or sing at your very feet, trusting to its habit of hiding and facility of escape under the herbage. Even the young, though only half-fledged, if disturbed, will quit the nest, and instinctively hide amongst the grass. But at early dawn it sings on the top of a twig, gaping, and shivering with its wings. The only time they expose themselves on the tops of furze or other bushes to sing their queer cricket-like song is when they arrive, and continue till the females come about ten days later. After that they are not openly seen, unless at early morning, but chirp or sing concealed amongst the herbage. They chirp incessantly at dusk—a sort of grinding, hissing noise, like a grasshopper—hence its name. This note consists of a sort of sibilant ringing cry, repeated without intermission for several minutes, and so exactly like the mole cricket's as to be difficult to distinguish them. The general colour of this bird is dull olive-brown, with oblong spots; the lower parts pale yellowish-brown; fore part of neck has dusky lines; the tail is long; iris, brown; bill, brown above, yellowish below; legs and feet yellowish-brown. The female similar—length, 5⅝ inches; extent of wings, 7½ inches. There is another larger species, called Savi's Warbler—*Salicaria Luscinoides*: but, as I never saw it here, I need not mention it further than that it is very rare in Britain, chiefly found in the fens of Cambridgeshire; and in habits the same as the last. The eggs like the pied wagtail's. The next is

THE SEDGE WARBLER.

(Salicaria Phragmitis.) *Mihi.*

> "The duck dabbles 'mid the sedge;
> Or the swan stirs the reeds, his neck and bill
> Wetting, that drip upon the waters still."—*Wordsworth.*

In size and colour this bird resembles the *Locustella*, but is easily known by the white streak above the eyes. It has the same stealthy habits—only amongst sedges and reeds, instead of brambles and furze. The head is also narrow and flat, but not so much as the other. It is also a summer migrant, coming about the end of April. Its haunts are marshes, banks of rivers, and lochs—or wherever there are sedges, reeds, or aquatic plants to give it shelter—where it may be heard all day, sometimes at night during the breeding season, singing its varied, sweet, confused little song, which seems a general blending and medley of nearly all our little birds' songs—from the low twitter of the swallow to the rich notes of the lark, with the sweet notes of the linnet and robin, and the yelping of the sparrow, all intermingled with singular confusion and rapidity, as if its object was to mingle as many different styles in the shortest space of time—to make it "like a tale told by an idiot, full of sound and fury, signifying nothing"—for which it is called "Blethering Tam." It lays in May and June; eggs usually five, pale brown, all speckled over with small spots. They are less than the grasshopper warbler's, and so like the yellow wagtail's as hardly to be distinguished, which no doubt would help Linnæus to class them with the Motacilla. The nest varies according to locality. It is found hung amongst reeds—like the reed warbler's, but most amongst sedges or rushes, or in a low bush or whin. I got one with five eggs in a clump of willows at Eden, near Eden Grove. It was composed of grasses, and lined with feathers, tied or strung betwixt several of the willow twigs. They frequent the vicinity of the old quarryhole near Dairsie Bridge. Although deeper than the nest of most birds, it is not so deep as the reed warbler's, unless when suspended amongst reeds, like those of that bird, when it is deeper, to obviate the swaying of the reeds by a breeze—for birds are intelligent architects, and build their pendent cradles according to circumstances. They also vary in construction; some are compact and strong; others flimsy and fragile, but all more or less of umbelliferous plants; a little moss, and lined with the fine tops of these plants and flowering grasses, with some wool, hair, or thistle-down. I have got them at Kinkell amongst sedges and rashes; and at Kenly Burn, in Pitmillie Den. On the 16th June 1889, I got one at Kinkell lined entirely with wool; it was in the centre of a clump of high ferns—the bird flew out, else I would not have seen it. The inside cup was a perfect circle, 2¾ inches diameter, and not so deep as usual, as if safe from wind amongst the ferns; but when I returned in a fortnight it was deserted, rather than run the risk of being harried—a proof of their reliance on concealment. Its hiding habits make this bird seem rarer than it is, and, as I have shown, may be found in various places if searched for. It has a peculiar habit of singing its hurried, loquacious song at night, and even during the day (though closely concealed) can be made to betray itself by its song if a stone be cast into its retreat—as caged birds are set a-singing by the rattling of tea-cups or the hissing of the frying-pan. It is less than the grasshopper warbler; general colour, yellowish-brown; upper part of the head brownish-black, the feathers margined with light brown, without the dark spots of the other; the chin and throat are white, but the distinguishing marks are the milk-white streak above the eye and the tawny rump; iris, brown; bill, dusky and sharp; legs, blackish brown; claws, long and sharp. Length of the bird, 5⅝ by 7¾ inches in extent of wings. The female is like the male in colour, but plainer.

THE REED WARBLER, OR REED WREN.

(Salicaria Arundincea.) Mihi.

> "The mother bird had moved not,
> But, cowering o'er her nestlings,
> Sate confident and fearless."—*Southey.*

This bird is so rare in Britain as to be classed merely as an O.V. It is also a summer migrant. I never found its nest myself, but one was got amongst the reeds at Eden, and the eggs brought to me for identification. The nest is generally supported by four or five reeds, and looks very fine with the long leaves of the reeds bending over it. It is one of the most interesting of all our birds' nests—more like one of those curious structures which the tailor-bird weaves for the protection of its young from the many enemies which abound in tropical climes; for were it not for the deep and narrow nest fixed between the high reeds, so subject to be bowed down and swayed by the wind, neither the mother, eggs, or young could remain in it an hour during a gale—for the reeds bend down to the very surface of the water. It is the deepest and narrowest of all our birds' nests—so deep as to entirely conceal the bird when sitting. It is composed of the flowering tops of the reeds, finer in the centre, sometimes completed by a few hairs. The outside is bound round and kept firm by long grass, mixed with wool, and, at the same time, twisted round the reeds to bind all together—such is the instinct of unerring Nature, which enables the eggs or young to ride secure in their wisely-constructed cradle! The eggs are larger than the sedge warbler's, and easily known by the greenish colour and larger spots or blotches. The eggs of the three are unmistakably distinct—the first is pink, with carmine specks; the next yellowish-brown; and the other light bluish-green, with darker blotches; but, as already said in this little work, eggs, like the nests of birds, vary in colour and shape—for instance, reed warblers' nests are often got as shallow as those of the sedge warbler. Mr Hewitson says a bird-stuffer in Bath got several nests for him in that city in gardens lying near the river—one was in a lilac, another in a lauristinus; and as they did not require the same precautionary depth they were not deeper than a sedge warbler's (as the sedge warblers is as deep as theirs if amongst reeds), and were composed of grass and bits of moss, bound together with wool and spiders' webs. Its song is sweeter than the sedge warbler's, has fewer harsh notes; but in the same hurried manner—something like "*chiddy*, *chiddy*, *chit*, *chit*, *cha*, *cha*, *chit*, *chit*," and so on. It is larger, but has the same hiding habit. It is easily known from that bird by its richer plumage and the want of the white streak above the eye. The upper parts are greenish-brown; throat, breast, and belly, yellowish-white. The next typical genus in this sub-family is

PHILOMELA—NIGHTINGALE.

(Motacilla Luscinia.) Linn. *(Philomela Luscinia.) Swains.*

> "The crow doth sing as sweetly as the lark
> When neither is attended; and, I think,
> The nightingale, if she should sing by day
> When every goose is cackling, would be thought
> No better a musician than the wren."—*Merchant of Venice.*

However justly celebrated it is for its power of song, I reluctantly give it but a brief description, as it is not one of our St Andrews birds, and seldom seen north of the Tweed. White, of Selborne, says they "not only never reach Northumberland and Scotland, but Devonshire and Cornwall. In those two last counties we cannot attribute their failure to the want of warmth, but as a presumptive argument that they come over to us from the Continent at the narrowest passage, and do not stroll so far westward." But in June 1889 it was heard at Paisley and at Uddingston. Writing from Uddingston, June 9th, Mr James Anderson says—

"For the first time for thirty-five years since I came here, I heard last night, in the Greenrig Road, the sweet and varied song of the nightingale. It is over these years since I heard it in the south of England, and its visit here is so rare that a notice might be welcome to the general reader. Many people who heard this bird thought, from the sweet shrillness and variety of its notes, it might be the mocking bird *(Turdus Polyglottus)* of Linnæus—a species of thrush that has not found its way to this northern climate. It is not so, but is the true *Motacilla Luscinia* of Linnæus, which some authorities have changed to *Philomela Luscinia*. Linnæus' description is 'rufus-ash above, white-ash beneath; tail, rufus-brown; inhabits Europe, Asia, and Africa; is 6¼ inches long; is of all birds the most famous for its song; visits England in April, and leaves in autumn; frequents thick hedges; sings the greater part of night, and while the hen is hatching. It breeds three or four times a year, and lays four or five greenish-brown eggs; feeds on the larvæ of insects. Bill, brown; head and back pale mouse colour, with olive spots; tail, red mouse colour; legs and quills brownish, the latter chesnut on the outer edge.' It sang on a sycamore tree, then down to a shrubby willow—not in the least put about by the dozen people talking in admiration of its piping notes. The little bird was about the size, form, and colour of the linnet. In the hush of evening, and long after midnight, it gave us a practical illustration of Coleridge's beautiful stanza—

> ''Tis the merry nightingale
> That crowds, and hurries, and precipitates
> With fast, thick warble his delicious notes,
> As he were fearful that an April night
> Would be too short for him to utter forth
> His love-chaunt and disburthen his full soul
> Of all its music.'

Its notes are not so strong as they are clear and shrill, reaching in the quiet midnight fully 200 yards, to where we were sitting at the open window hearing it. The extraordinary fine season—much the best in my remembrance—has no doubt something to do with its migration northwards; it is a rare event indeed to hear it. There is another nightingale more common in the south, but it has not the power of variety of song—although a larger bird with a stronger note—by name *Philomela Turdoides*."—JAS. ANDERSON.

In 1889, May and June were exceptionally warm, and, as previously remarked, some birds once only found in the south of England are now found north in Scotland—possibly through better cultivation and drainage (as the people are becoming more and more one)—witness the nightingales at Paisley and Uddingston. It delights to catch the notes of other birds, such as the sparrow, yellow-hammer, lark, blackbird, mavis, and linnet, and seems to revel in mocking them—for this it has been likened to the mocking-bird of America. Its characteristic is a sort of *birl*—like a whistle with a pea in it—as superior to theirs as Shakespeare says Coriolanus was to the franchised rabble—

> "He is their god; he leads them like a thing
> Made by some *other Deity than Nature,*
> *That shapes man better;* and they follow him
> Against us brats, with no less confidence
> Than boys pursuing summer butterflies,
> Or butchers killing flies."

In his "Idylls of the King," Tennyson compares its voice to Enid's—

> "For, when he waited in the castle court,
> The voice of Enid, Yniole's daughter, rang
> Clear through the casement of the hall;
> So the sweet voice of Enid moved Geraint,

And made him like a man abroad at morn
When first the liquid note—beloved of men—
Comes flying over many a windy wave
To Britain, and, in April, suddenly
Breaks from a coppice gemm'd with green and red,
And he suspends his converse with a friend—
Or may be the labour of his hands—
To think or say 'There is the nightingale,'
So fared it with Geraint, who thought and said,
Here, by God's grace, is the *one* voice for me."

And, in one of his sonnets, Shakespeare likens it to the voice of grief—

"It fell upon a day,
In the merry month of May,
Sitting in a pleasant shade
Which a grove of myrtles made,
Beasts did leap, and birds did sing,
Trees did grow, and plants did spring,
Everything did banish moan
Save the nightingale alone;
She, poor bird, as all forlorn
Leaned her breast against a thorn;
Fy, fy, fy, now would she cry,
Ter-e-u, Ter-e-u, Ter-e-u, by-and-by, by-and-by,
That to hear her thus complain,
Scarce could I from tears refrain;
For her griefs so lovely shown
Made me think upon my own."

And, in his poem on the rape of Lucrece, he makes her say—

"Come, Philomel, that sing'st of ravishment,
Make thy sad grove in my dishevell'd hair;
As the dank earth weeps at thy languishment,
So I at each strain will strain a tear,
And with deep groans the diapason bear;
For, burthen-wise, I'll hum on Tarquin still,
While thou on Ter-e-us descan'st better skill."

And again—

"By this, lamenting Philomel had ended
The well-tuned warble of her nightly sorrow,
And solemn night, with slow, sad gait descended
To ugly hell; when lo, the blushing morrow
Sends light to all fair eyes that light will borrow;
But cloudy Lucrece shames herself to see,
And, therefore, still in night would cloister'd be."

Another poet also says of the nightingale—

"Sing on, sweet bird, pour out thy soul among
Yon darkling woods, and flood the vacant air
With thy rich melody!
Sweet bird, sing on! too soon thy happy mood
Must change, thy song must fade, and thou wilt know
That love grows cold; and, voiceless, thou shalt brood
Till, at grief's bidding, thy wild song renewed
Burst forth once more an ecstacy of woe!"

And Burns, in praise of Allan Ramsay, characteristically says—

> "Thou paints auld Nature to the nines
> In thy sweet Caledonian lines;
> Nae gowden stream through myrtle twines
> Where Philomel—
> While nightly breezes sweep the vines—
> Her *griefs* will tell."

It is strange they should call its "merry" song one of *grief*, unless, because it sings at night, it is supposed to be so.

This famed songster is less than the lark—more slender and handsome; is about 6¾ inches long and 10½ in extent of wings. Though its song is not so mellow as the merle's, nor so loud as the mavis', nor so thrilling as the lark's, still for power and variety it is the best of our British songsters—at least it seems so when heard in the hushed stillness of night. It is a modestly attired, shy bird, partaking of the hiding nature of the preceding warblers; like the robin it nestles on the ground, amongst the roots of trees and bushes. The nest is also composed of herbage and dry leaves, matted together and lined with fine grass; eggs five, sometimes six—like the colour of the bird itself—plain brown; iris, hazel; legs and toes long and slender—strange, like the skylark (two of our best songsters), it should be so plainly dressed and nestle on the lowly ground; what a comment upon proud ostentation. Johnston of Carnbee, in his local tragedy of that name, makes our own martyr, Patrick Hamilton say, when hearing his sister singing, after he had come home from the Continent to die—

> "Is it the robin's low note I hear,
> Bidding me know the sweet summer away?
> Yes! yes! I see that the leafage is sere,
> I scent the autumnal decay."

A true picture, as the robin sings on the approach of winter.

The next allied genus in this arrangement is that of *Curruca*—the warblers, which differs from the last in having the bill more compressed, with a sharper ridge; legs shorter, and the feet better adapted for perching—the blackcap being the type. They have also sweet and varied songs, but not equal to the nightingale's.

The Blackcap Warbler.

(Motacilla Stricapilla.) Linn. (Curruca Atricapilla.) Bechst.

> "Hearing thee, and others of thy kind,
> As full of gladness and as free of heaven;
> I, with my fate contented, will plod on,
> And hope for higher raptures when life's day is done."
> —*Wordsworth.*

This shy, solitary bird is called the mock nightingale, for in some respects it almost rivals that bird; but, however varied and melodious, it is no mock song—it is its own, and, though it catches the notes of other birds and can imitate the nightingale, it is no mere mocking singer; for its sweet, cheerful song—so richly blending those of other birds—is the spontaneous outcome of its own happy nature revelling in its own capacity. It is the singer of the family, oftener heard than seen, when sitting safely ensconced amongst the leaves of some luxuriant elm, beech, or plane tree in leafy June; but he generally sings upon some lofty twig on the top of it. If he spies an intruder he instantly darts down and hides himself in the thickest brake—for it also has the hiding instincts of the family—and, screened by the thicket, will renew its song though one is standing close beside it. It is loud, clear, and rapid, and so varied as to be often mistaken for that of other birds, not confined to one or two notes—like the blackbird—and in this respect is a veritable garden nightingale. White, of Selborne, a close observer, says, "The blackcap has a full, sweet, deep, loud, and wild pipe; yet that strain is of short continuance, and his motions desultory; but when sitting calmly and singing in earnest he pours forth very sweet, but inward, melody, and expresses great variety of soft and gentle modulations superior to any of our warblers—the nightingale excepted." It is also a summer migrant, and is occasionally seen in the large gardens and thickets about St Andrews. It makes its nest in a close shrub or evergreen, and amongst brambles or nettles; is composed of fine roots and dry grass, bits of thread, and wool, lined with finer grass and some hair. Though slightly constructed it is strong and compact, and in this differs from the garden warbler's. The eggs are four or five, usually yellowish-grey, faintly mottled with purplish-grey and some darker spots; some are pink, with shades of darker red; are about the size of the robin's, $\frac{3}{4}$ by $\frac{5}{8}$ inch. The young, like the old birds, have the same hiding nature, and when disturbed, though only half-fledged, will hobble out of their nest and hide. It lives chiefly on larvæ and insects, and the smaller fruits, such as rasps and currants. Like the stone chat it flits from bush to bush and tries to screen itself. The male is well-named the blackcap, and is easily known by its distinct black cap or bonnet—the female's being reddish-brown. It is 6¼ inches long by 9¼ in extent of wings. It is the best songster of all the warblers, and nearly as easily distinguished by its fine song as by its black cap, for each bird has a song peculiar to itself, as Wordsworth remarks— .

> "The blackbird amid leafy trees,
> The lark above the hill,
> Let loose their carols when they please,
> Are quiet when they will;
> With Nature never do they wage
> A foolish strife."

GREATER PETTY CHAPS, OR GARDEN WARBLER.

(Motacilla Hortensis.) Linn. (Curruca Hortensis.) Bechst.

> "As songsters of the early year
> Are ilka day mair sweet to hear,
> So ilka day to me mair dear
> And charming is my Philly."—*Burns.*

This bird is the same size as the last; is also a summer migrant, but stays a shorter time, arriving in May and leaving early in September. It has the same habits as the blackcap, and sings almost as well—but more of a whistle, like the blackbird. Montagu says, "It is little inferior to the nightingale. Some of the notes are sweet and soft; others quick, lively, loud, and piercing—something like the whistle of the blackbird, but in a more hurried cadence, and sings often after sunset." Sweet says, "Its arrival is soon made known by its very loud and long song. It begins very low—like the song of the swallow, but raises it by degrees until it resembles the song of the blackbird; singing nearly all day and the greater part of the time it stays with us, which is short, as it leaves in August." It is rare about St Andrews, and so like several of our garden frequenters that unless closely watched can scarcely be distinguished—for it is plainly dressed—the general colour being light greyish-brown. It lives chiefly on fruits and insects. Like the fly-catcher, it takes its stand on a stake, darts after the fly, and returns to its post. Montagu says, "It was first discovered in Lancashire, and sent from thence to Dr Latham by Sir Ashton Lever;" but very rare in Scotland. Not long after this, writing from West Lothian, Mr Duncan says he saw it there "frequenting an underwood plantation, where it warbled, with its peculiar mellowness and sweetness combined, its song as it threaded its way round the trunks of the trees through the brakes and bushes of the copse." I am convinced it is more widely dispersed than is supposed; but as there is nothing in plumage to distinguish it—its habits retiring—it may be flitting about our gardens and copses unnoticed, and its song mistaken for the blackcap's or other birds. Indeed, rare birds in the brake, like rare fishes in the bay, are not always found. Many rare birds may be winding their way in thickets, or creeping amongst nettles close beside us; yet, like their nests, remain unseen, for their mission is to live retired and rear their young unobserved—not to obtrude themselves before man that he may write ostentatious books about them. For as Gray truly says—

> "Full many a gem of purest ray serene
> The dark unfathomed caves of ocean bear;
> Full many a flower is born to blush unseen,
> And waste its sweetness on the desert air."

I found one of their nests amongst high nettles at the side of a hedge at Abbey Park. It is more flimsy than the blackcap's, more like the whitethroat's. Eggs four or five, about the size of the hedgesparrow's; a little less that the blackcap's, but like them in colour; some of them pinker than the robin's, others mottled like the chaffinch's. The nest is in low bushes or undergrowth, amongst brambles, nettles, or tares—often on the ground amongst rank grass—on a row of pease-sticks in a garden to tares in an open field. The bird is 6 inches long by 9 in extent of wings. Colour, light greyish brown above, light greyish-white below; iris, hazel.

The Common Whitethroat.

(Motacilla Sylvia.) *Linn.* *(Curruca Cinerea.)* *Bechst.*

> "I saw spring return, and could rejoice
> In common with *the children of her love*
> Piping on boughs, or sporting on fresh fields,
> Or boldly seeking pleasure nearer heaven
> On wings that navigate cerulean skies."—*Wordsworth.*

This loquacious, blustering bird is much more common than the last two, so common as to be called beardy, blethering Tam, Peggie whitethroat, muffie chauther, &c., and seems more numerous than it really is from its garrulous habit of singing, or "blethering," openly on almost every hedge by the roadside, ostentatiously swelling out its little throat and erecting the feathers on its head like a muff—hence its name of muffie—as if to call attention to its own garrulity, like some worshipped statesmen "inebriated with the exuberance of their own verbosity." Its throat puffed out with conceit—like too many human muffie chauthers—to hide its inferiority of song, so unlike its two preceding shyer cousins, which, like true ability and worth, hide themselves in silence away from society to escape observation, and yet at times it sings pretty loud and sweetly. As far back as June 3rd, 1855—nearly forty years ago—I noted this, for one note written on the spot during a bird-hunting expedition says, "There goes two muffie chauthers, one singing a loud song for such a small bird; it is something like the robin's—sweet, but quicker and shorter. When disturbed it cries, in a hoarse tone, churr, to-wy, to-wy, quickly joining the two last syllables. These birds are very common in the hedges I see; but if it would only hold its peace it might pass for being rare, as it glides with great ease through the hedges and thickets." Its liveliness and petulance make it the observed of all observers. If you come near its nest it will fly close to you, scolding like a little termagant, and flit about you from spray to spray until you leave the place. Its song, although cursory and rapid, is not unpleasing; it often sings on the wing as it rises from the twig on which it was perched—rising some yards, fluttering and wriggling in the air, singing all the time, then slowly and fantastically returning to the same perch.

This flight is so peculiar and amusing as to be noticed by all naturalists. In walking past a hedge in a summer evening this fussy little bird is sure to announce itself by its lively, short, and varied song—the very opposite of the sweet low warble of the willow wren. It will flit in front of you from twig to twig a long way; but if it sees a cat, at once will stop its churring, nor cease its alarm till the cat retires. Like the rest of the warblers it is a summer migrant, and, like all our feathered summer visitors, along with their young, if alive, return—as the equally fussy and garrulous King James the Sixth of Scotland and First of Great Britain returned (however tardily) from London to visit Scotland "with," as he said, "a salmon-like instinct to the place of his birth." It makes its flimsy nest amongst brambles, nettles, or rank herbage, near a hedge, ditch, or thicket; it is composed of the fine stalks of grasses, firmly, though loosely, interwoven with spiders' webs and wool, usually lined with black horse-hair. But though it seems flimsy and frail, and is one of the lightest of our birds' nests, it is as firm and compact as the more closely woven structures of the *Fringillidæ*. Those I measured were 4 inches by 3 deep outside, and 2⅛ inches by 1¾ deep inside. The eggs four or five, sometimes six. They are all more or less tinged with green and darker specks, and usually seem smeared and dirty, and not easily mistaken for those of any other bird. I have got their nest under a hedge at Abbey Park, close to a willow wren's, and also amongst willows at the burn-side near the Law Mill. On the 11th of June I watched a pair in a garden on the south side of South Street. I noted that "the male was a proud little bird; it puffed out its throat, sang, and flitted constantly about with a higledy-pigledy sort of flight, flying forward a short way—jerking up and down, then to the side—up again, while its long, loose-like tail gave it such a fantastic, shuffling appearance as to be well named 'shuffle-wing.'" Its food is like the rest of the warblers—insects, larvæ, and the smaller fruits. The general colour is light greenish-brown; head, darker; wings and tail, brown; throat, white—hence its name; breast tinged with red; bill and legs, dark brown; iris, brown. Female similar, without the red tinge on breast. Length, 5¾ inches by 8½ in extent of wings. The plumage is very soft and loose, which intensifies its fantastic flight.

THE LESSER WHITETHROAT, OR WHITE-BREASTED WARBLER.

(Motacilla Garrula.) Linn. *(Curruca Garrula.) Briss.*

> "The birds of late so noisy in their bowers
> Warbled awhile with faint and fainter powers,
> But now are silent as the dim-seen flowers."—*Wordsworth.*

Though not nearly so garrulous as the last, this bird is well-named *Garrula*, and the Babilard or babbling warbler. In food, time of coming and leaving, it is like the last—only less, and not so ostentatious in song and flight; is shyer and more retiring—preferring to screen itself amongst the thickest hedges than exposing itself, singing and tumbling over them like a fool in a ring—like the last. Therefore, like the garden warbler, it seems to be rarer than it is. At one time it was thought to be confined to the south of Britain. Montagu says its northern limit was Lincolnshire; since then it has been traced throughout Scotland, and no doubt flits about the thickets and plantations around us, although unobserved, as it conceals itself with much art, and threads through the densest thicket with the ease and speed of a mouse. So I advise my young friends who care for the study of Ornithology to watch and read the book of Nature for themselves; and many birds, deemed rare, will be discovered to reward them for their pains or pleasures. As proof of this a Statistical Report of Hamilton, in Lanarkshire, says—"The lesser whitethroat, supposed to be confined to England, is common here. The nest is sometimes in a hedge, but oftener among long dry grass by the side of a wood, four or five inches from the ground, and generally overshadowed by a twig of bramble or other shrub; it is more compact than that of the larger whitethroat. Its song is sweeter and more perfect, and its eggs are also very different." Selby also says—"Its retired habits and impatience of observation—always ensconcing itself amidst the entanglements of hedges or underwood—kept it out of view for a long time, and caused it to be regarded as of great rarity and very local distribution; but the keen pursuit of late years has led to a closer search, and it is now ascertained that this and several other supposed rare birds are as abundant and as widely disseminated as many others whose different habits have long made them known to us"—a proof that Nature is so full that most is found where most is searched. Its nest is found in similar places, and closely resembles those of the three preceding species, only it is constructed of finer materials, bound together with spiders' webs, bits of wool, &c.; lined with some fine roots, but chiefly of the heads of fine grasses deprived of seed, in lieu of the stronger stalks of grass of the others; the texture is so open as to be seen through, yet firm. The eggs, usually five, are lighter coloured, with clearly defined spots—not so closely freckled and dirty-like as those of the common whitethroat—more like those of the blackcap. Besides the smaller fruit, such as currants in gardens, it alights on growing beans and wheat, and does great service to the farmer by eating the eggs of destructive insects, such as those of the wheat-fly—*Cecidomyia Triuci*, and do much more good than the loss of a few berries. It is easily distinguished from the other, being less (5¼ inches long by 8 in extent of wings), and by its bluish-grey legs, and its breast and belly being silvery-white. The upper parts are pale brown, tinged with grey; head, darker; iris, yellowish-brown. When flitting about it is very difficult to identify—not only from its shyness, but its persistent habit of hiding out of sight. I have watched it, and unless I had known its habits I could not have identified it—it slipped so quickly into a thicket or amongst the leaves of trees. There is another species—the Orpheus warbler—larger than the common whitethroat; but as it is very rare, and having never seen it about St Andrews, I need not describe it.

SUB-FAMILY SYLVIANA.

This group includes our smallest birds, such as the gold-crested wren, the tits, and wood wrens. The generic features are—head, pretty large; bill and wings, rather short; tail, long and soft; form slender.

THE DARTFORD WARBLER, OR FURZE WREN.

(Sylvia Dartfordiensis.) Lath.
(Melizophilus Provincialis.) Leach.

> "Methinks it is not strange, then, that I fled
> The house of prayer, and made the lonely grove
> My temple, and marked the insect hum,
> The flow of waters, and the song of birds
> Making a holy music to mine ear."—*Southey.*

This plain-dressed little bird received its name from being first identified as a separate species by Dr Latham, in 1773, who got a pair from Bexley Heath, near Dartford, in Kent, to which name science added *iensis* and *provincialis* to latinize and confound it; and Dr Leach formed it into a genus by itself, under the queer name of *Melizophilus*—hence called *Melizophilus Provincialis.* But, like love and war, all is fair in the science of Natural History. This plain little bird is no bigger than the jenny-wren, but its long tail makes it look larger. No doubt it flitted about furzy heaths in the south of Britain centuries before Dr Latham saw it, and, for aught I know, it may be flitting about them in Fifeshire now, although unnoticed. It is indigenous and plentiful in the south of England, and may be so in Scotland, now that the habits and cultivation of the old island are so much assimilated. On passing through Banffshire and other counties in the north, in August, I saw the grain crops ripe and ready for cutting; while in Fifeshire they were not even tinged with ripening yellow—so much for our northern climate. So I advise my young readers to be on the alert for the Dartford warbler and other rare little birds which are so much alike in colour. In habits, nidification, and hurried song it is like the whitethroat—singing while fluttering over the furze as they do over a hedge. It has the flitting habits of the chat, with the hiding, hurried singing of the whitethroat. It is only 5 inches long by 6 in extent of wings. The general colour is blackish-grey; wing coverts, quills, and tail blackish-brown; throat, fore-neck, breast, and sides reddish-brown; belly, white; tarsi and toes, reddish-brown. Rusticus of Godalming says—"Its habits are like those of the jenny-wren—when the trees are bare and the wintry winds have driven the summer birds across the Straits the furze wren is in the height of its enjoyment. I have seen them by dozens skipping about the furze, alighting for a moment on the very point of the twigs, and instantly diving out of sight again—singing their angry, impatient ditty, for ever the same. They prefer where the furze is very thick, high, and difficult to get in." The next genus in the *Sylviana* is

Genus, SYLVIA.

This interesting group of small birds may be considered representative of the warblers, distinguished by liveliness and activity—typed by the tits—constantly in motion amongst leaves and branches in search of insects and larvæ. The three wood wrens—the yellow, the willow, and the short-winged, are so much alike as to be mistaken for each other—thus is our common Mother-Nature so lavish of creation that there shall be no gap in her one grand whole of life.

THE LESSER PETTYCHAPS, OR CHIFF-CHAFF.

(Motacilla Hippolais.) Linn. *(Sylvia Hippolais.) Lath.*

> "Where the small birds find in spring no thicket
> To shroud them; only from the neighbouring vales
> The cuckoo, straggling up to the hill-tops,
> Shouteth faint tidings of some gladder place."—*Wordsworth.*

It is called the chiff-chaff from its little song or double note of chiff-chaff. It is also called the short-winged wood wren, and is so like the wood and willow wrens as to be difficult of distinction, except by its note, although its shorter wings, less size, and want of the yellow eyebrow do so on close inspection. The legs also are black, instead of flesh-colour. As a guide, the wings of the yellow wood wren are 3 inches long; the willow wren's 2½ inches; and the chiff-chaff's 2 inches—the first reaching two-thirds the length of tail; the other one-half; the last about a fourth. It is rarer than the other two, and, except the wheatear, is our earliest spring visitor—arriving in March, sometimes earlier; and in mild winters some remain all year. But although early in coming it is late in leaving, about the end of October; and although its little song is monotonous compared to the richer notes of other birds, still, like the little snowdrop and pale primrose, it is hailed as the herald of spring and joyous summer, of sunny days and leafy trees, after the dark gloom of winter; although when it comes there is not a leaf to cover it. It does not begin to breed till May, until there is a supply of insect food for its young—a lesson in domestic economy which more pretentious birds might study before entering the matrimonial bond. It is rather rare about St Andrews. The nest is similar to the willow wren's, composed of dry grass, dead leaves, and moss, profusely lined with feathers, covered with a loose constructed dome—the hole near the top; often found under long grass on the ground, but as often in a low bush, dead ferns, or underwood, two or three feet from the ground. On May 11th I got one amongst ivy at Abbey Park, three feet up, with one egg; on the 18th there were eight eggs in it, when the bird began to sit. The nest was composed of moss outside to resemble the ivy, almost filled with feathers inside; the small hole in front was an inch in diameter. The eggs are slightly pink, freckled with brown spots; but several small birds, such as the chiff-chaff, the willow and wood wrens, the smaller tits, and the creeper have their eggs about the same size and much alike in colour. They are usually pale pinkish-white, with spots, chiefly at the larger end. On May 5th, 1856, I got one amongst long grass at the side of a dyke, also with eight eggs; and on May 26th, 1862, I got one with six fresh eggs in the middle of very young whins, under the herbage—proving there is no particular place for birds to build. This bird flew out at my feet, yet I could not find its nest until I lay about five yards off and watched her enter. She was in no hurry to show me her treasure, but kept searching and coolly feeding on the eggs and larvæ of insects amongst the branches of the trees close by—or pretending to do so—coming nearer and nearer, until she popped down like a stone and went in—thus I found it in a strip of wood at Allan Hill, about two miles from the city (close to where I got a coletit's, with eggs, in the rotten stump of a tree). The reason I could not find it at first was that it was covered with dry grass so like the herbage. Amongst the feathers of this one were some long and short horse-hairs. At the proper time the nests of all these little herbage-haunters can be got by watching them with feathers in their bill. I got one on July 1st, 1878, at Gilston, in a variegated spruce fir, on the lawn, where there was no long herbage. It was 5 feet 6 inches from the ground, and near the edge of the branch ; loosely and clumsily constructed ; long and straggling in form ; arched over—the entrance hole near the bottom at the front. It was lavishly filled with feathers, and had five very deep-sitten eggs. The bird allowed me to touch the nest before she flew out, but when I returned, in about half-an-hour, she slipped down and hid herself in the closest shrub when I approached the tree. I unfortunately broke one of the eggs when she was away—the young bird in it. I lay and watched ; in five minutes she returned with her mate—they both skipped about the tree ; she went close to the nest, but seemed in no hurry to enter, for, as a fly caught her attention, she left her eggs to catch the fly, and several others, quite at her ease, before she resumed her incubation. I waited to see if she would sit on the four eggs. Her loss of one was either unnoticed or unheeded, for she remained in her nest, which shows that birds do not desert when their eggs are handled or some taken. The general colour of the bird is greenish-brown, tinged with grey ; under parts pale yellow ; between the bill and eyes, and over the eyes, are narrow yellow-white streaks ; iris, brown. Length, to end of tail, 4½ inches, and 6 in extent of wings.

THE YELLOW WOOD-WREN, OR WOOD-WARBLER.

(Sylvia Sylvicola.) Lath. *(Sylvia Sibilatrix.) Bechst.*

Wi' chirps an' sangs an' mellow notes,
And hum of busy bees,
It seems as if the leaves had throats,
And fir-taps sang on trees.

This bird is called the wood-wren, or wood-warbler, because it frequents woods of large growth—free from brushwood—in distinction to the willow wren and chiff-chaff, which are met with in every strip of trees or tangled copse. It is rarer and larger than them ; but was considered rarer than it is, and long escaped detection as a separate species by its being confined to old open woods, and flitting amongst the higher branches of the high trees. It passed for the willow wren, till White of Selborne and Montagu simply did what we should all do—took nothing for granted, but studied the open book of Nature for themselves, and were *agnostics* in Natural History, as we should be of Natural Religion—not like those manufacturers of shoddy who take the works of dead authors, tear them to pieces, without giving their authority, add scraps of their own, and make them pass for new. Writing in April 1768, White says—

> "I make no doubt but there are three species of willow wrens ; two I know perfectly, but have not been able yet to procure the third. No two birds can differ more in their notes, and that constantly, than those two I am acquainted with ; for the one (this wood wren) 'has a joyous, easy, laughing note ; the other a harsh loud chirp.'—the chiff-chaff—'the former is larger and three-quarters of an inch longer, weighs two drams and a half, while the other weighs but two—so the songster is a fifth heavier than the chirper. The chirper is the first summer bird of passage that is heard, begins his two notes in the middle of March and continues till the end of August, as appears by my journals. The legs of the larger are flesh-coloured ; of the less, black.'"

And writing in August, same year, 1768, he says—

> "I have now, past dispute, made out three distinct species of the willow wrens *(Motacillæ Trochili of Linn.)*,* which invariably use distinct notes. In my letter, of April 18th, I told you peremptorily that I knew your willow lark, but had not seen it then ; but when I got it, it proved to be a very *Motacilla Trochilus* (wood wren)—only it is a size larger than the other two, and the yellow-green of the upper part of the body more vivid, and the belly of a clearer white. I have specimens of the three sorts now lying before me, and discern that there are three sizes—the least has black legs ; the other two flesh-coloured ones. The yellowish bird (the wood wren) is considerably the largest, and has its quill-feathers and secondary ones tipped with white ; the others have not. This one haunts only the tops of trees in high beech woods, and makes a sibilous, grasshopper-like noise, now and then, at short intervals, shivering a little with its wings when it sings ; and is, I make no doubt now, the *regulus non-cristatus* of Rae, which he says '*cantat voce stridula locustæ.*' Yet this great ornithologist never suspected there were three species."

Although not very common, it is found in all old woods throughout Britain. I have seen and listened to it with silent pleasure at St Fort, Magus Moor, the old fir park on Tentsmuir, Kinaldy, and all the old woods about St Andrews. It feeds on insects and their larvæ, and, like the tits and creepers, runs up and down the trunks and branches in search of them. It begins its peculiar and loud notes of *twee*, *twee*, *twee* slowly, and ending with the same notes faster. Like many of the warblers it sings on the wing when slowly descending to the twig from which it rose, and many a time, as I have listened to those sweet half-melancholy notes in the hushed silence of an old wood, I have felt a calm pleasure stealing over my thoughts, leading to that innate, true, *natural religion* which neither chant nor choir, sermon nor deep-toned organ can subdue—the inborn aspirations of the human soul! which, when we dare do ill, "conscience makes such cowards of us all" that "the native hue of resolution is sicklied o'er with the pale cast of thought." And as these little birds return to their native haunts, at Nature's call, to continue their species, no hymn nor song, even in a crowded church, is more joyous, and reminds us more of *true* prayer and praise, than those clear, sweet, wild notes from the top of some tall tree, in the midst of human solitude, beneath the dome of heaven—alone with Nature and her happy offspring, with unpretending worship. Such feelings no doubt made Southey, in his "Joan of Arc," make the maid exclaim, when arguing with the priest about the power of Nature over the human soul, that it had a better effect upon her mind than the ritual of the church—

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* Like his genus *Falco*, the genus *Motacilla* of Linnæus embraced a wide range of birds, sub-divided since White's time by many authors.

> "The birds
> Who to the matin ray prelusive pour'd
> Their joyous song, methought did warble forth
> Sweeter thanksgiving to religion's ear—
> In their wild melody of happiness—
> Than ever rung along the high-arched roofs of man."

Its shrill, quivering note is heard a long way off in the hushed silence of the wood, and cannot be mistaken for that of any other bird—from which hissing-like trill it has derived the Latin name of *Sibilatrix.* Its nest is made on the ground, under the herbage in the wood, domed over like the others; but lined with fine fibres and hair instead of feathers. The eggs, six or seven, are known from those of the other two by being a little larger and freckled over with rufus dots, the colour of claret—they are $\frac{5}{8}$ by $\frac{1}{2}$ an inch. The nest is easily found by watching, as the bird flies down direct to it with materials or food. It deserves the name of yellow wood-wren from the top of the head and upper parts of the body being light yellow; forehead and eye-streak, gamboge; throat, sides of the breast, and thighs, pale yellow. The iris is brown. Male $5\frac{1}{4}$ inches long; $8\frac{3}{4}$ inches in extent of wings. Female similar.

The Willow Wren, or Willow Warbler.

(Motacilla Trochilus.) Linn. *(Sylvia Trochilus.) Lath.*

Loud whistle on, my bonnie thrush;
Sing sweeter yet, sweet wren;
You seem to people ilka bush,
To wile's away frae men.

Unless the swallow, there is no bird I see and hear with greater pleasure and reminds me more of summer than the willow wren, which, like all our feathered summer visitors, comes at the call of Nature to the home of its nativity to fulfil the sacred duties of life—make love, build, and brood and rear its young, then go away when Nature's object is accomplished, and insect life for the season done, and passes our winter elsewhere until the budding leaves proclaim summer again. When first heard in May, by the margin of some silent wood, there is a sweet simplicity in its cheerful, yet plaintive, song which birls in the heart of man—at least every true naturalist's, and sends a finer thrill of pleasure through his mind than the most imposing ritual of a creed—unless the creed of Nature, sense, and truth—the deities and trinity of Reason, for as Shelley says—

"Our sweetest songs are those that tell of saddest thoughts."

Like the wood wren, it makes its domed nest under the herbage, also of moss, dry leaves, dry grass, and fibres, lined with hair and wool, and stuffed with feathers. It is 5½ inches diameter outside and 2½ within. Eggs, usually seven, rounder, pale pink, spotted with rusty brown spots; the wood wren's being darker and more freckled. It arrives here about the end of April; I have seen them on the 17th. The chiff-chaff comes first, the wood wren last. On the 19th April, on the watch for them, I noted down—"Not yet seen the willow wren, although I hear the little cole-tits singing their loud *cheeka-cheeka* song in the wood." It frequents open strips and young plantations near their margins, grassy drives, and hedge banks. They begin to breed about three weeks after arrival. On the 26th May, for the purpose of ascertaining this, I saw a pair treading on an ash tree at the road side, near Allan Hill, and, walking along the edge of a strip of wood, I watched another with dry grass in its bill. I lay a few yards off and saw her fly down and deposit it under the herbage. On looking carefully I found the spot where the nest was being made, but could only see the very small entrance hole, as the half-formed nest was entirely under the long grass at the root of a small whin; further on I saw another bird with a feather in its bill, which I also watched, and saw her deposit it under the herbage, like the other, and in a few seconds fly off for more. I searched, but could not find the nest; but, as I did not want to crush it, I made a mark and passed on. On coming back I again watched, and saw the same bird with another feather. I stood within ten feet of her; she never heeded, but flew down, deposited the feather, was up again in a moment, taking no time to arrange it. I went to the very spot this time, and got the nest by seeing two wood-pigeon's feathers lying at the entrance of the diminutive hole. The nest was completely hidden under the mossy grass, and no one could have discovered those two nests unless by closely watching the birds. This one was also near a small whin. The males flew twittering about the whins and trees close by. One of them flew down, seized a worm, about two inches long, and flew up with it. When I approached it flew off with its prey, which was larger than I thought they fed upon. I saw another dart after a fly, which it missed; but quick as thought wheeled and snatched it with a snap of the bill I distinctly heard. On the 27th I saw one building at Abbey Park, but the grass not being long enough to hide the nest the top was raised like a ball and covered with grass and moss, so exactly like the rest that it could not have been detected. I had not seen the bird doing it; the raised portion was 3 inches diameter by 2 high. On June 4th I got another under the herbage and roots of a hedge, also at Abbey Park, with seven eggs, so artfully concealed and covered with old leaves, grass, and twigs that, though the bird flew out at my feet, I could hardly find it. On May 31st I got a nest with four eggs; I returned on June 3rd and found seven in it, one had been added each day. I give these dates to show the time the willow wren breeds here, and how the nest may be discovered without hiring boys, for Dr Macgillivray says—"One he obtained on the 7th of July 1837 contained four eggs, and the parent bird was caught in the act of incubating and slain, contrary to good feeling" (I should think so), "by a boy hired to disclose the discovery of a Whitie's nest." So, if you go to the margins of woods or adjacent gardens about the end of

May and watch, they will show you their nests themselves, without hiring boys to "slay the bird while incubating." They prefer open woods or strips, with some whins or brushwood. In my rambles I have got moss-formed domed nests, without feathers or hair inside, amongst whins on the outskirts of woods, about three feet from the ground, with a small entrance hole near the top, and as I never got them with eggs or young, I think the male may sometimes build a nest for himself near where his mate is cosily incubating amongst the herbage; for travellers in Zululand tell of a pretty little brown bird called the "watcher," which also makes its nest on the ground, weaving it of soft grass, in two storeys. The male keeps watch over the top of the grass from his seat on the upper storey, while the hen sits on her eggs below. If he gives warning she has time to get away. Snakes might eat the eggs, but a woven door or screen hangs down in front and hides them. The three willow-wrens have the same habit of hiding their nests amongst the herbage. White gives an instance of this:—A willow wren built her nest in a bank in his fields, which he used to visit. One day, along with a friend, they went to see how she was getting on, but no nest was to be found, until he "happened to take up a large bundle of long green moss, as it were, carelessly thrown over the nest in order to dodge the eye of an impertinent intruder." The bird had seen them prying, and had tried still more to conceal it; yet they are not shy, for I have stood near them when making their nests, and are so easily tamed that in three days after being confined in a cage if let out will fly about the room and at once catch the flies, and if a fly is held up it will flutter and take it out of the hand. In his "Eggs of British Birds," Mr Hewitson says:—"To make certain of the eggs figured I captured several of the birds on their nests. I carried one home, and kept it in a large box all night, and such was its tameness, that when I took it out in the morning it had no wish to leave my hand, and hopped about the table at which I was sitting, picking up the flies I caught for it." Dr Liverpool also says that "three or four in his aviary entirely lost their natural shyness after he had them a month, and were the most amusing little pets he ever had." And Mr Sweet, in his "British Warblers," says:—"One I caught in September was, in three days after, let out of its aviary into the room to catch flies, so numerous at that season. After amusing itself for some time, it began to sing, and in a few days sang in its aviary." When heard in the calm stillness of a wood, its low sweet song is peculiarly pleasing—almost pathetic. It resembles *twee-twee* uttered about a dozen times, beginning low and plaintive, gradually falling and growing quicker at the close. The general colour is greenish brown, the feathers margined with yellow; wing coverts and quills pale yellow; from the base of bill to over the eyes is a streak of primrose yellow, but not so well marked as the last species; cheeks and throat also yellow; belly, white; under tail coverts, pale yellow; legs, yellowish brown or flesh colour; iris, brown. From its yellow facings it is also sometimes called the yellow wood-wren, but it is less than the last—5 inches long by 7¾ in extent of wings. The female resembles the male. Like the other two, it moults in September before leaving us in October. It is one of the most abundant of our warblers. Mr Hewitson says:—"I shall not forget the delight I felt on hearing its soft sweet note, whilst seated within the Arctic Circle upon one of the bleak isles of Norway." Before leaving us in autumn they frequent our gardens, picking insects from pease, straw, and vegetables (the young distinguished by their brighter yellow), sometimes warbling a farewell song; but different from their joyous carol in spring, and so subdued as to be scarcely audible. White says:—"The willow-wrens (the smaller sort) are horrid pests in a garden, destroying the pease, cherries, currants, &c., and are so tame that a gun will not scare them." The next genus in the sub-family *Sylviana* is

Genus, REGULUS, OR CRESTED KINGLETS.

This genus is represented in Britain by the gold-crested wren, the smallest of our British birds, although two species are found in Europe, two in America, and a fifth in the North of Asia.

The Gold-Crested Regulus.

(Motacilla Regulus.) Linn. *(Sylvia Regulus.) Lath.*

> "Thou fairy bird, how I love to trace
> The rapid flight of thy tiny race!
> For the wild bee does not wave its wing
> More lightly than thine, thou fairy thing!"

Although the smallest of our native birds, it is also one of the hardiest, and found in every spruce-fir wood from the south of England to the north of Scotland, and, like the willow wren, as far north as the Arctic Circle. This diminutive bird, only 3¾ inches long, finds its way over the North Sea, from Norway to Britain, in autumn in flocks, and retires again in spring—although many perish in the migration. On the night of the total eclipse of the moon, 4th October 1884, a dozen were caught at the lantern of the Isle of May Lighthouse. Their migration began on the 28th of August, and continued till the 16th of November that year. But although our smallest bird it is wonderful how much insect life it destroys—even in captivity, when its vitality is weakest, it has been tested, and found to have eaten 1,000 ants' pupæ daily—these weigh two drams, so each bird consumes yearly about 65 ounces of insect life. When at liberty it does not get so many ants' pupæ, but it searches for the eggs of butterflies, plant-lice, small caterpillars, and such like. As it takes 20,000 butterfly eggs or 20,000 plant-lice to make half-an-ounce, every golden wren exterminates yearly over three and a-half millions of these destructive pests. As there are no plant-lice nor caterpillars from autumn till spring, it picks out the chrysalises of insects from trees and bushes in its untiring search after insect life. It is known that a pair carry food to their young 36 times an hour, or 576 times a day of 16 hours; and say they have two broods of eight or eleven each, the quantity of insect pests a forest is cleared of each year must be enormous. Let those who have had the leaves or flowers in their gardens attacked and stripped by insects pause before killing any of their feathered friends which feed on insects, caterpillars, and grubs, and think upon what he himself would be without water, soap, and the comb. The nest is usually suspended under a spruce-fir branch by spiders' webs and wool, sometimes built on the upper side of the branch. I have got them suspended in spruce-firs, from 6 to 20 feet up, in nearly all the woods in the district; being small and like the colour of the branch it is not easily discovered under the close, horizontal branch. It is a beautiful round, domed structure of fine moss and lichens, interwoven with wool, and so profusely stuffed with small feathers inside as often to hide the small entrance hole. It is 3½ inches diameter outside, and only 1½ inside, and 1½ deep, and yet, in this tiny hung cradle as many as eleven little kinglets are reared. On May 26th, 1864, I got one at Kenley, under a high spruce branch, with eleven fresh eggs in it, ½ inch long by ⅜; they were light pink, freckled over with darker specks. I have got them on young spruce-firs five feet from the ground. It is an early breeder, sometimes in March. Selby knew of full-fledged young as early as the 22nd of April. On the 20th of February 1878, before they began to pair, I heard their sweet low song, and watched twenty of them flitting about the high spruce-firs at St Fort—it was a beautiful day, at 3 P.M. They paid no heed, although I stood within ten feet of them, being too busy searching for larvæ—often clinging by their feet, back downwards, or running up and down the trunks incessantly, like creepers and tits; or flitting about like butterflies in ceaseless, wonderful activity, cheeping constantly like shrew mice the while. On May 31st, 1863, I saw a young brood of ten flown—the old ones feeding on a spruce-fir at Kinaldy, and I noticed the young ones also tried to look for insects amongst the branches themselves, sometimes they huddled so close together that I thought they could not fly; but when I threw up a stone they darted off like a shot. On June 23rd, 1889, I got a nest with ten eggs under a spruce branch, 18 feet high, at Morton's Cover. I had to climb a neighbouring Scotch fir, as the spruce branch stretched too far out, and the nest was only two feet from its extremity. The bird popped out, and I left the eggs after counting them. It was a beautiful spherical nest then, with an inch entrance hole; but when I returned on the 7th of July the young were nearly ripe. They crouched close as I looked at them, and would have scrambled off if I had touched their nest, so I slipped down, not wishing to disturb them. When I went back on the 14th they were flown, and the once lovely nest all out of shape by the traffic in feeding so many young birds. When it held the ten tiny eggs, like peas, it was only 1½ inches inside, but now the entrance hole was pressed down until the inside was 4 inches long by 1¾—a shapeless fabric, having served its purpose; so that if the gold-crests rear two and three broods in the year (which I see no reason to doubt) they must make new cradles for each. This nest (which I brought home) was neatly and strongly hung on eight small pendant twigs, the outside being firmly entwined around them—it seemed a wise provision to be suspended between these twigs to allow for its expansion as the young ones grew; for its original size, though large enough for incubation, could not have held the ten ripe young birds. As I brought the branch with the nest home I carefully inspected both. The nest was firmly put together as if sewn with spiders' webs, some hairs, wool, and fur, all interlaced amongst moss and fine lichens; profusely lined inside with small feathers and some hairs—the outside being stuck all over with green and grey lichens to resemble the branch. Tennyson not inaptly says—

> "Do you ne'er think what wondrous beings these?
> Do you ne'er think who made them, and who taught
> The dialect they speak, where melodies
> Alone are the interpreters of thought?"

With keener instinct than Columbus in search of America, the courageous little gold-crests cross the North Sea, from Norway to Britain, 350 miles, with their tiny wings and a fair wind blowing, at the rate of fifty miles an hour, in six or seven hours, if the wind keeps fair; but if adverse many perish—proved by Selby, who saw them arrive exhausted on the 26th of October 1822. He says—"After a severe north-east gale on the 24th and 25th, which veered to east south-east some hours before its conclusion, they arrived along the coast of Northumberland by hundreds upon the beach, so exhausted by the unfavourable change of wind as to drop the moment they reached land, unable to make further exertions. Great numbers were taken by the hand, unable to rise or escape their pursuers." This great flight he ascertained extended from Berwick to Whitby in Yorkshire. Redwings, fieldfares, and woodcocks came at the same time from "the northern provinces of Europe." The numbers daily increased, but soon spread over the country, until about Christmas only the usual number remained in the locality. From the 12th to the 24th of January following, a prolonged sea and snowstorm set in, which, after a week's cessation, was renewed from the 1st to the 4th of February—long after known here as the Long Storm, from the number of vessels wrecked on the west sands. And as a result of that long storm scarcely a gold-crested wren was to be seen that year, until some began to arrive again in October, so we see they require to be prolific to stand the strain of such losses as these. And modern Biology, in its scientific observations from 118 different reports from lighthouses along our coasts, tell they "cross the North Sea in extraordinary numbers in September, October, and November," many "striking against the glass in the darkest nights, and caught." The general colour is yellowish-brown; the lower parts darkish-grey; the feathers so soft and long that, when raised, the bird is like a downy ball. Those of the crest are long, silky, and shining—in the male, beautiful orange; in the female, yellow; legs and iris, brown. The body, wings, and tail of this handsome wee bird are of moderate length, while its easy flight, sprightliness, activity, and sweet song so harmoniously blend as to make it the type of the *Sylviadæ*. It is only 3¾ inches long by 6½ in extent of wings; female a half-inch less—the least in size of all our native birds. I have seen them in small family parties here summer and winter, and met them in autumn on the wooded slopes of Ben Vrackie, as well as on the birch and pine-clad skirts of Loch Brora. There is another species called the fire-crested kinglet, *Regulus Ignicapillus*, sometimes seen in the south-east coast of England. Its crest is redder—hence its name. It is about the same size; but, as I never saw it here, I need not further describe it, only, as the few individuals found on the south-east coast of England may have been driven out of their way, I see no reason why they may not be found on the East Coast of Scotland. The next sub-family of this interesting group is

THE PARIANA—THE TITS, *Genus* PARUS.

From their stronger bill and other generic features, some authors class the tits with the finches, the *Fringillidæ*. They have an intermediate bill between the hard and the soft—between the Linnæan genera of *Fringilla* and *Motacilla*. Linnæus not inaptly ranges plants geographically—palms inhabit the tropics; grasses the temperate zones; mosses and lichens the polar circles; and birds may be classed the same way by the bill. But the tits, as a separate genus, stick pretty close together although allied to the wrens, so I shall begin with the largest.

THE GREATER TIT, OR OX-EYE TIT.

(Parus Major.) Linn.

> " Hindrances, through which I struggled, not without distress,
> And sometimes injury—like a bird that breaks
> Through a strong net, and mounts upon the wing
> Though with her plumes impaired."—*Wordsworth.*

This beautiful bird is about the size of the robin, and, like it, pays a visit to our back courts in search of food during severe winters, pecking the tissues off refuse bones or anything it can find ; it draws to us in September, after the corn is cut. I saw two in our garden on the 21st. It is a hardy bird—no mere truant summer visitor, but a true native, and remains all year, taking pot-luck with us. Its bill is comparatively longer and stouter than the rest of the tits. Though not very common, it is found in nearly all the woods and some of the gardens about St Andrews. I have got their nests in garden walls and in holes of trees. If there is no hole they will make one in a decayed portion of a tree, which their strong bill enables them to do. If the hole is large the nest is bulky, and loosely constructed with moss, old leaves, fibres of the tree, worsted, cotton thread, bits of cloth, and hair of all kinds, cosily lined with wool, fur, hair, and feathers ; eggs, from six to twelve, about the size of a robin's, but whiter and dotted with red spots, like those of the nuthatch. Macgillivray says they lay " about six eggs"—a proof that he never got many of their nests, for in May 1884 I got two at Balmungo—one in the hole of a dyke with nine ; the other in the hole of a tree, near the root, with twelve. Selby says twenty, which is also incorrect. These nests were composed with the usual materials, and lined with fur but no wool. On June 12th I got a nest in the hole of a tree, near the root, in Bonnytown Wood, with thirteen young ones—the most in number I ever got, and quite enough to rear on the eggs and larvæ of insects. All the tits and wrens are prolific, as if meant to play an important part in the wise economy of Nature. Like all the rest the ox-eye is an active, lively bird ; but all the tits are perfect harlequins—feathered mountebanks, cutting capers on the trees—the one moment on the top of a branch, the next hanging by their feet, back downwards, on the most slender twigs—then running up the trunk searching every nook and cranny for the carefully concealed eggs or larvæ, then off to the next tree, with direct and rapid flight, to renew their antics. It is an early breeder ; I have heard its courting notes in March, which can hardly be called a song ; but what it wants in harmony it has in vigour, variety, and dash. When heard in a still wood its loud chur, r, chir, r, r, r, ik, like the scrape of a file on a saw ; or still louder, three notes of cheeka, cheeka, cheeka may be heard one thousand yards away, sometimes imitating the clear chink, chink of the chaffinch, with the plaintive chilly, lilly poo of the yellow-hammer, as if glad to give some kind of a song—having no particular one of its own. They have two and three broods in the year ; the first flies in June. A pair had their nest in an old ash tree near the shore bridge in Abbey Park. On the 18th of June the whole brood, young and old, found their way into our boat-shed at the harbour, and with difficulty scrambled out by the broken panes ; two were caught exhausted with their own attempts, lifted up, and let away to join their friends ; strange these did not scratch and bite, as tits usually do, and for which it (along with the blue tit) is called billy-biter—a proof that even birds distinguish a friend from a foe. A nest-box was placed between the branches of a low tree, a robin took possession early, had one brood, and an ox-eye had two broods afterwards in the same box one year. Although its chief food is the eggs, pupæ, and larvæ of insects, along with insects, it also feeds on seeds, buds, and carrion ; it will even kill weak young birds, and has been known to break their skulls by blows with its strong pointed bill ; but in this it is not singular, as it is the survival of the fittest throughout creation—including man. In husking cereal seeds, such as wheat and oats, it does not shiel them like the huskers—the finches and sparrows, but by strokes with its bill. It is not so social as the rest of the tits, flying together in parties, although it sometimes mingles with them. Its chief home is the woods, summer and winter, where it searches every crevice in the bark, branches, buds, and leaves to keep down insect pests. White of Selborne says—"In hard weather, and in deep snows, I have seen it hang with its back downwards (to my delight and admiration) and draw straws from the eaves of thatched houses, to get the flies that were concealed between them, to such an extent as to give the thatch a ragged appearance." It is calculated that each tit will destroy 20,000 eggs and larvæ daily, or 6½ millions yearly.

When in confinement it has been tested to consume three-eighths of an ounce of butterfly and moth grubs—about 20,000 each day—just fancy the enormous good done by each tit consuming 20,000 eggs of the ill-famed *Liparis-monache* moth daily ! or the same number of chrysalises, caterpillars, &c. ; and if we calculate what a single pair of tits, with say only two broods in the year of about twenty young ones, will destroy of insect pests—about 30,000,000 yearly—will show the far-reaching world of Nature, and the unwisdom of interfering with her balance of life—even before the insects get leave to fly ; and when we know the redstart eats 800 flies an hour, and the cuckoo 100 caterpillars in the same time, it is not for the great little mind of man—even without the wonders of the microscope, to try and grapple with the unfathomable mysteries of creation. It is like trying to measure the distance from earth to the farthest star in space. It is not only one of the liveliest, but one of the loveliest of our British birds. The head, throat, and under part of neck black, glossed with blue ; cheeks, ear-coverts, and a spot on the neck white ; back, olive-green ; rump, bluish-grey ; wing-coverts, greyish-blue, tipped with white ; quills, greenish-grey, added with greyish-blue ; tail the same ; breast and belly light yellow, with a black streak down the centre ; legs, bluish-grey ; iris, brown. The blue, black, and white stand out in bold relief. The female the same, only less glossed. Length of this bold, handsome bird is 6¼ inches long by 10 in extent of wings. Female half an inch less.

THE BLUE TIT.

(Parus Cœruleus.) Linn.

> " The crystal waters round us fa',
> The merry birds are lovers a',
> The scented breezes round us blaw
> A-wandering wi' my Davie."—*Burns.*

This is our most common and best known tit, sometimes called bluecap, blue-bonnet, tomtit, billy-biter, and ox-eye also. It is less than the last, and known by its light blue head. It is one of our prettiest and most interesting little birds. Its slightly turned up, pug-like bill, jaunty blue cap, white cheeks, boldness, and activity stamp it as pertness personified. It has all the characteristics of the last; its notes are similar; and also builds in holes of trees and walls, but lays more eggs. I have got sixteen in one nest, in defence of which it will die rather than desert. One day when breaking the decayed stump of a tree one was found sitting on fourteen eggs, off which she had to be forcibly taken before she would fly. Hewitson says—"A pair took possession of a hole in a tree where pied fly-catchers had reared their young for four years, and, wishing them still to do so, the tit's nest and sixteen eggs were taken out, yet the tit would not leave the hole, for I saw it repeatedly afterwards for some weeks sitting on the bare wood." When over on Tentsmuir, on June 7th, 1886, I saw a blue tit sitting on her nest in the hole of a birch tree, four feet up, in the old fir park wood. The entrance hole was only 1½ inches, while the bird was 5 inches down, so I could not get down my hand; but, although I struck the tree repeatedly with a branch, she would not come out. I cut the hole larger with my knife, till I could touch her, but still she would not budge, neither did she try to bite me, but dourly sat still. I was a quarter of an hour at this, but still she sat. I wrenched away part of the rotten tree, and laid both her and her nest bare, and still she sat. I went aside four yards and watched the result; in four minutes she flew quietly away. I looked in and found the cause of her solicitude, the nest filled with new hatched young. I carefully replaced the broken bark and waited twenty minutes; she came and flew down to the hole a score of times, but always flew off again. I lost patience and went away, but I have no doubt maternity would conquer fear, that she would go in and rear her young. The cavity in which the nest lay was barely three inches in diameter, hardly room to hold it. On May 9th, 1863, I got three of their nests, with fresh eggs, near the gamekeeper's house at Mountmelville; one in the hole of a tree, another in a hole under the slates of the low house, the third in a small nest-box placed on a tree by his son. To show its persistency—on March 4th a pair began building in the letter-box at the lodge gate of Duncarse House. The keeper cleared out the material three times, but the little tenants persisted in building till pertinacity won, for he allowed them to finish it and rear their young till they flew, undisturbed by the reception and removal of the letters and newspapers daily. Curiously, in 1889, another pair did the very same in the letter-box at the farm of Whitepark, Castle Douglas, for, although the materials were frequently thrown out, they also persisted until they were allowed to finish and rear their young. One singular feature was, when the keeper himself opened the box the bird raised its wings and angrily hissed at him; but when his niece opened it (as was generally the case) the bird allowed her to stroke its head. Letters and papers were often lying right over the bird and nest, and sometimes she pushed some of them out of the letter hole by which she entered. I got a nest in a dyke at Balmungo with sixteen eggs, and one in a beam hole in the old flour mill on the Kenly Burn, also with sixteen eggs; but the usual number is seven or eight. I pulled out the rotten stump, laid the nest bare, and counted the eggs. I took five and left the rest; they were pretty round, $\frac{1}{2}^{1\,6}$ by $\frac{1}{2}$ an inch, pink, and speckled over with red spots. The nest was composed of dry grass, fine roots, and moss, lined with hair and feathers. To show they are not nice where they build, I got one with eight eggs in a crevice on the movable gasometer at the harbour. On June 13th, 1889, when the new Burgh School was building at Abbey Park, I got a nest in the old dyke by watching the bird, with small green caterpillars in her bill, fly down and enter a small hole betwixt the pointing of the copestones. I saw the young ones, but could not reach them without taking off the cope. They stretched up their heads and gaped, expecting food. I saw the old bird again on the 20th with caterpillars; on looking into the hole I saw nothing. I thought they had flown; but on peering closer, I detected them huddling close with their heads down, instead of gaping—a habit with all young birds just before flying. I think the tits are unjustly accused of destroying buds, for in the spring of 1886 I noticed some blue tits peering and pecking among the fruit-buds of an old pear tree in my garden. Anxious to see if they were pecking the buds—as they really seemed to be—I climbed up, and found the buds and leaves literally covered with small green caterpillars, about half an inch long, so, instead of injuring the buds, the active little birds were saving them from being destroyed and the leaves stripped by thousands of these crawling pests; and to show how many will be destroyed by a brood of tits, a patient naturalist, Mr Weir, got up at half-past two A.M., on the 4th of July, for the express purpose of counting how often a pair fed their young during the day. He says—

> "At half-past three they began to feed their young, six in number; from then till four o'clock they fed them twelve times; from four to five, twenty-five times; five to six, forty times; six to seven, twenty-nine times; seven

to eight, twenty times (raining heavily this hour); eight to nine, thirty-six times; nine to ten, forty-six times; ten to eleven, thirty-seven times; eleven to twelve, thirty-nine times; twelve to one, twenty-four times;, one to two, twenty-three times; two to three, thirty-four times; three to four, eighteen times; four to five, twenty-nine times; five to six, twenty-five times; six to seven, twenty times; and from seven to half-past eight, twenty-five times, when they stopped, having been engaged almost incessantly for seventeen hours in their labour of love, after feeding their young 475 times, which was astonishing, as they flew to a plantation more than 150 yards away from their nest. They appear to feed them *solely with caterpillars;* sometimes they brought a single large one, at other times two or three small ones."

So here is proof positive of the vast number of caterpillars destroyed annually by the tits, and a good illustration of Shakespeare's expression—"The labour we delight in physics pain." But in winter when there are no caterpillars they must just live on what they can get; and as a proof of their love of flesh and suet, on the morning of December 12th, 1882, during a severe snow-storm, one flew into a butcher's shop near where I live; hopping on the stools and tables it feed itself, then flew away; it returned on the 13th, 14th, and 15th, till it grew so tame as allowed itself to be caught and taken to the back shop or business-room, where it made itself quite at home, perched on the gasalier and gas-brackets, and enjoyed its winter quarters until spring and the green leaves returned, when the joys of love and the cares of a family impelled it to retire to the woods and feed on caterpillars again. The colours of this lively little bird are—forehead, cheeks, and a band above the eyes, white; crown of the head, berlin-blue; streak before and behind the eyes, black; nape of the neck and collar, deep azure-blue; back, greyish-blue, with a tinge of green; wings, pale berlin-blue, the greater coverts tipped with white; tail, pale blue; throat and middle of the belly, deep blue; breast and sides, pale yellow; bill and legs, bluish-grey; iris, brown. The female similar except the blue down the belly not so well defined. Length of male 4¾ by 7¾ inches; female, as usual with all small birds, a little less. Mr Bowdler Sharpe, of the Zoological Department of the British Museum, says—"The blue tit is one of the few birds peculiar to the British Islands, which was overlooked by naturalists till he pointed it out. It is quite different from the blue tit of the Continent, which has a pure white head—both male and female. All our resident birds are more or less different from those on the Continent, not only in plumage but in habits, caused by our moist climate." As to this I cannot speak with certainty, but think it worth while to introduce here.

The Marsh Tit.

(Parus Palustris.) Linn.

> " Now in her green mantle blithe nature arrays,
> And listens the lambkins that bleat o'er the braes,
> While birds warble welcome in ilka green shaw ;
> But to me it's delightless, my Nannie's awa ! "—*Burns.*

Like the rest of the tits this one remains with us all year, has the same active habits, and also feeds on insects and larvæ, corn or carrion ; also breeds in the holes of trees, chiefly willows. The nest is made of moss, dry grass, and lined with the down of the catkins instead of hair and feathers. Eggs, from six to eight, a little larger and rounder than the blue-tit's, red-spotted the same, chiefly at the larger end. The eggs of the tit and willow wren resemble each other, and are difficult to be distinguished when mingled. Although a marsh and willow frequenter it is not confined to these, but is to be found broadcast on the driest ground ; it prefers the marshy, wooded margins of streams and lakes, where it finds an abundant supply of food amongst the decayed branches and trunks of willows, as the others do in larger woods. Although not so abundant about St Andrews as the blue tit, it is found in all suitable localities, but being plainer dressed it often escapes observation. It has the sharp notes of the greater tit and the cole-tit, but not so loud and distinct ; instead of the three cheerful notes it makes two rasping notes—like a file sharping a saw, which it begins in February and March. It is easily known from the blue tit by having a black instead of a blue head, and also from the cole-tit by the want of the white cheeks. It is a little larger than either, but not so large as the greater tit—it is 4½ by 7½ inches. Its head and throat are brownish-black, with a broad patch of greyish-white on the cheeks and sides of the neck ; back, greyish-brown ; underparts, brownish-yellow ; bill, black ; iris, brown ; legs, bluish-grey—a plain sombre-like bird compared to the blue tit.

THE COLE-TIT.

(Parus Ater.) Linn.

"Ready as the tuneful notes
That stream in blithe succession from the throats
Of birds, in leafy bower,
Warbling a farewell to a vernal shower."—*Wordsworth.*

Except the gold-crested wren and the long-tailed tit, this is the smallest of our British birds, but what it wants in size it makes up in activity and noise; for, when its clear, loud *cheeka*, *cheeka*, *cheeka*, *chee* is heard in the hushed silence of some old fir wood, no one would think the notes came from such a tiny pipe. It also is a native, and has all the habits of the rest. In plumage it is like the greater tit. Its black head, white cheeks, and general colour make it a little *facsimile* of the head of the family. It makes its nest in the rotten stumps and holes of trees—deeper down than the rest—in fact, prefers a subterraneous nursery—sometimes utilising a rat's or mouse's hole. It breeds about the same time as the rest. I have got both eggs and young of nearly all the tits at the same time, often in the same woods. This one prefers old fir woods; the old fir park on Tentsmuir is a favourite habitation. The end of April or first of May is the best time for their eggs; I have got them on the 19th April. On June 7th, 1861, I got two nests in the trunks of birch trees in the old fir park, near the roots; the entrance holes were only an inch in diameter. One of them was nine inches into the tree. I saw the bird pop out or I could not have got it. I dug away the moss, rotten wood, and earth; there were nine ripe young ones in it. On putting in my hand five flew out, the rest also came out and scampered away. The other nest had eight, also nearly ripe. They, too, scrambled out of the hole, half ran, half flew away—they would not stay in the nest after I disturbed them. I let them all away; they were very pretty, light blue and yellow. The first nest was composed of moss, rabbits' fur, and three white feathers—the other had more fur. They are partial to fur when near a warren like Tentsmuir. These nests were easily found, for the old birds popped in and out constantly with caterpillars. I lay down six yards off and watched them long before I disturbed them. On May 25th, 1862, I saw a cole-tit fly down and disappear in the herbage at the Allan Hill strip of larch trees (now cut down). On looking I found an old larch stump with a hole in it covered by the grass. I tore away the herbage and rotten wood; about a foot down the stump I saw a dozen young gorbs gaping up; after peering closely down the hole under ground I saw the old bird further down. It came up, its wee eyes glancing fire, and dashed its wings at my hand, and retreated down again—it did this thrice. At last, as I stood back, it came deliberately out—as in triumph—and flew up on a tree. I could not help thinking upon the courage of this little tit, for—except the blue-tit, the missel thrush, and some of my tame pigeons—I never met a bird that actually disputed my right to touch its young like this little Trojan; for hawks, carrion crows, and owls have slunk away as I climbed up to their nests when they had young. The young were mere gorbs, so I carefully arranged their hiding-place which held the tit's dearest treasure, and left it to rear its link of creation in peace. On May 9th, 1863, I got a nest at Mountmelville in the hole of a beech tree, with seven slightly-sitten eggs; the entrance was five feet from the ground, but the nest was two feet down in the trunk. I got the eggs up by splitting a thin stick, then whittling each side to a shaving, to form a sort of forceps, by gently pressing it over each egg. I got them all out safe, but replaced them when found to be sitten; this bird would not fly out though poked with the stick, nor defend her eggs—so all are not alike. On the 16th May (same year) I got a nest with six raw young ones in the trunk of a cut tree at Kinaldy. On the 31st I visited my little family again; they were quite ripe; they take three weeks from hatching to flying. I watched the old ones; they came every minute with caterpillars, insects, or larvæ; they had a particular twig on which they alighted before darting down to the hole. I lay quite close, they were not afraid, paid no heed to me; on coming out they flew away in one direction and returned the same, as if their supply of food was there. I came back on the 3rd of June, and they were flown—so they take nineteen days to be ripe. There was one rotten egg besides the six young ones. The number of eggs or young varies. On May 26th, 1864, I got a nest in the stump of a tree at Priormuir with twelve deep-sitten eggs; and another at Kinglassie on the 28th, with eleven ripe young ones—also in the hole of a tree. To get into it the bird had to go underneath a stone which leant against the trunk; and on June 11th I got a nest with raw young ones in a rotten Scotch fir stump at Stravithie. The hole was too small for my hand, so I removed as much of the grass and rotten wood as allowed me to look down. I put down my hand and found the nest filled with the gorbs. I saw something white in the hole; to satisfy myself I pulled some up—it was a superabundance of rabbits' fur stuffed in the cavity, which was ten inches under the surface, while the stump was ten inches above it—more like a nest for young rabbits than young cole-tits. And on June 9th, 1889, I got one with ten young ones, fourteen inches into a mouse's hole, at Bonnytown den, formed on the mouse's old nest—the most singular one I ever got. I had to cut the hole until I reached it, which was also lined with fur. I stood and watched the old bird; when it got a fly or grub it hopped about, cheeping, from branch to branch till it reached the one nearest its nest, then darted down to it. It did this repeatedly, getting the food amongst the trees close by. The eggs are less than the blue-tit's—pale pink, speckled with red spots and some bigger spots at the larger end. The bird is 4¼ inches long by 7¾. The head, throat, and under part of the neck, glossy blue-black; cheeks, sides of the neck, and a large patch on the nape, white; hind parts, brownish yellow; two white bars on the wings; legs, bluish-grey; bill, black; iris, brown. Female similar. They are found in all the old woods about here.

THE LONG-TAILED TIT OR MUFFLIN.

(Parus Caudatus.) Linn.

"But still, where general choice is good,
There is a better and a best;
And, among fairest objects, some
Are fairer than the rest."—*Wordsworth.*

This pretty little bird, like the cole-tit, is found in nearly all the old woods about St Andrews, although sparsely, and, as it seldom leaves the recesses of its native haunts, it is not often observed; and were it not for its mouse-like cheep of *twit*, *twit*, would scarcely be noticed at all, it is so small and agile, and keeps to the thickest part of the woods. It has the active habits of the tits, and also stays with us all year; but in nest-building and plumage it is not like them, so much so that some authors have placed it in a genus by itself, under the appropriate name of "mufflin," from the soft loose feathers of its throat being like a muffler. When denuded of its feathers its body is much smaller than the gold-crested wren's—considered our smallest British bird. It is the only bird of its kind in Britain: its soft downy plumage, muffled throat, and long tail make it more like a feathered dart than a bird, for it shoots through the air like an arrow. Its whole length is not 6 inches (the tail being 4) and 6¾ in extent of wings. If its tail is long, its bill is short—and seems shorter than it is—being half hid by the feathers round the base; and as both bill and tail are black it looks like a dart with a black point. Its nest is still more singular—being the most perfect and curious of all our birds' nests—not hidden in a hole like the rest of the tits, but nearly as much concealed by its own beautiful lichen-covered outside—like the tree on which it is built. To suit its long tail the nest is a perfect oval dome 5 by 7 inches long, the entrance is only 1¼ in diameter and 2 inches from the top. It is composed of moss and the flaxen fibres of plants, finely felted and interwoven with wool, spiders' webs, and filmy shreds. The whole outside is stuck over with small pieces of grey lichens, held on by filaments, hair, and wool, so neatly yet so compactly formed that, though most complete and strong, it is only a quarter of an inch thick, and for nicety of texture vies with any foreign bird's nest. But while the outside shell is so compact, the inside is loosely stuffed with all sorts of feathers—no less than 2379 have been taken and counted from one nest—as many as fill a hat, if loosely shaken into it—from pheasants, partridges, pigeons, rooks, thrushes, buntings, &c. The feathers are stuck all over the inside as thickly as the lichens are over the outside—the bottom and sides being closely packed—hence the great number it holds. Mr Weir saw a pair begin and finish their nest in the cleft of an old ash tree not fifty yards from his garden—

> "Before beginning they examined the place carefully. The under part was moss; the sides small portions of white and grey lichen moss, some feathers, and a few beech leaves, firmly interwoven with wool and spiders' webs. They pressed these down with their breasts and wings, and turned their bodies round in all directions. They set up a strong clicking noise, not unlike a stone-chat, when first observed, but they grew so tame that they paid little heed. When the male was at work the female remained on a branch about a foot from the nest until he was done; she then went in, and he remained outside until she was done. They then flew off together for

more materials, flitting through the air with the rapidity of an arrow. They began on the 20th of April, and on the 25th the outside being completed they began to line it with feathers. They showed great courage in attacking all kind of birds that came near their nest, although four times their own size, and drove them away with a harsh chirp. On May 1st they finished it, after twelve days of constant labour. On the 2nd the first egg was laid, and to-day, the 11th, there are ten in it. When the hen is sitting the male sleeps in the nest at night. I have caught them both in it after sunset, about the beginning of May. How they keep their tails from being injured is astonishing. Mr Selby asserts 'that a small hole is left on two opposite sides of the nest, not only for ingress and egress, but also to save the bird being incommoded by its long tail, which projects through one of the holes.' But if this be the form in England it is not so here, for all the nests I have seen had only one small hole."

They breed about the same time as the others, and lay from 7 to 12—sometimes 16 eggs. I have seen them building in the old fir wood on Tentsmuir on the first of May. Next those of the gold-crested wren they are the smallest eggs we have, nearly white, freckled over with red spots at the larger end. On May 18th, 1855, when searching for nests through Kinglassie wood (now cut down), I heard several mouse-like cries of cheep, cheep, varied with chit-chit, chack-chack, like the whin-chat, but much lower. I watched and saw several long-tailed tits darting about the whins and stunted birch trees. It was in the middle of the wood, where there was an open space as to trees, but densely filled with whins and scrubby birch. They flitted from the larger trees to the birches and whins, and back again, constantly in motion, and darted so quickly that but for their peculiar cry I would not have noticed them. Having my gun, I reluctantly shot one for a specimen, which I stuffed and still have. On December 12th, 1883, a bird stuffer, not so scrupulous, shot 7 out of a small family flock of 14—near the same place. In winter they fly in family parties of 12 or 14, sometimes in larger flocks, and associate with gold crests and cole-tits—they are easily known by their long tails. In January 1883 I got one lying dead at Eden, and on the 10th I saw a pretty large flock (several families joined) at the harbour searching the tops of the fishing boats' masts, where the grease for the "tie" of the lug sail gave an inviting supply of food, amongst the frost and snow. They climbed and flitted about the masts as actively as if they had been trees in their native haunts, clinging to the ropes in all positions. In flying from place to place they follow each other in a long string, so I think Mr White of Selborne slightly in error when saying, "it spends its whole time in the woods and fields, never retreating for succour in the severest seasons to houses and neighbourhoods." But in the main he is right, for these delicate birds, like the gold-crests, brave the hardest winters in their native haunts, and seldom quit them, living on the aurelia of the *Lepidoptera ordo*, which is fastened to the twigs of trees and their trunks, and found in every cranny and cleft of rock in infinite profusion, forming, along with other aurelia, the chief supply of those soft-billed birds which winter with us; but, for all this, and great number of young, their hardy independence keeps them rare, as many perish in severe winters. They breed in April; the usual place for their nest is in the centre of a thick bush or whin, difficult to find, sometimes on a main branch of an old tree, such as Mr Weir describes, where, unless seen building, it is as difficult to see, from its outside being so like the branch on which it is built. Mr Hewitson truly says—

> "Amongst all the ingeniously-constructed nests we have seen of the bright birds of other climes, none can surpass in beauty that of our native long-tailed tit. It is in every way perfect, as the safeguard of the tiny beings to be reared under its protecting roof and fostered by its warmth, covered and defended as it is against every wind that blows, and formed of the softest materials. Its exterior is of green moss, closely and compactly woven throughout with wool, and the nests and webs of spiders, studded and coated over outside like the nest of the chaffinch with pieces of grey lichen. Its inside is so thickly lined with feathers as to be called in some places the feather poke."

The head, throat, and breast of this delicately handsome bird are white; above each eye is a streak of black which join at the nape of the neck and form one broad black streak which runs down the middle of the back; the rest of the back and scapulars are dark rose-red; bill and tail, black; iris, brown; but its distinguishing feature is its long black tail.

The Crested Tit.

(Parus Cristatus.) Linn.

"There Damon lay, with Sylvia gay,
  To love they thought nae crime, sir;
The wild birds sang, the echoes rang,
  While Damon's heart beat time, sir."—*Burns.*

So far as I know this tit is not found about St Andrews; but is no proof that it is not to be found in our larger woods in

Fife, for many rare birds may be flitting about the recesses of woods and wastes we do not see; so I advise my readers to go into the woods and byeways—those wide open books of Nature—and read for themselves. It is very retired—preferring the gloomy forests of the north of Scotland. It also breeds in the holes of trees and rocks, and feeds on insects and larvæ, lays from 5 to 10 red-spotted eggs, like the rest. Mr Hancock got several of their nests in the woods of Morayshire on May 6th—mostly with 5 eggs; they were in holes in old stumps of trees from three to six feet above ground—composed of moss, rabbits' fur, and some feathers, like the cole-tit's. It is about the size of the blue-tit, but, except its black conical crest, it is plainer dressed, and resembles the cole-tit, but larger. It has a black head and white cheeks; back, greyish-brown; breast, greyish-white; lower tail coverts, pale yellow-brown. Size, 4¾ inches long by 8 inches in extent of wings.

THE BEARDED TIT OR BEARDED PINNOCK.

(Parus Biarmicus.) *Linn.*

"There to the brooding bird her mate
Warbles by fits his low clear song;
And by the busy streamlet both
Are sung to all day long."—*Wordsworth.*

As the crested-tit is chiefly found in the dense woods of North Britain, this species is chiefly found amongst the marshes and reeds of the south—between Erith and London—near the sea. Unlike the rest of the tits, it has its nest amongst rank grass and reeds, like the reed-wren, instead of holes in trees or dykes. It is never suspended between the reeds, but amongst tufts of grass, sedges, or broken reeds. It begins to build in April. It is composed of the dead leaves of reeds and sedge, mixed with grass outside and lined with the tops of reeds and fine grass, like the reed-wren's; eggs, five to seven, pale cream colour, with small lines and dots, as unlike those of the tits as its nest is different. The borders of the stretches of fresh water, called Broads, are favourite resorts. I am not aware of having seen it here, but that is no reason why it may not be found in suitable localities here as well as in Norfolk, Suffolk, Huntingdon, Cambridge, and Lincoln, for it is a native, and frequents marshy districts near the sea, rivers, and lochs. Although classed amongst the tits, it might with equal propriety be classed amongst the finches in the *Deglubitores*, for in autumn and winter it lives chiefly on the seeds of the reeds, and has a crop about the size of a hazel nut, while none of the tits nor any of the *Cantatores* have one—living chiefly on insects and larvæ. Some authors call it the bearded pinnock, from having this dilation of the *œsophagus* peculiar to the huskers. Be that as it may, I retain it amongst the tits as I have the long-tailed tit, from its activity and general resemblance in habits. Like the long-tailed tit it cannot be mistaken for any other bird, for its tail is as long ; so if you see a handsome long-tailed bird, with black moustachios, flitting amongst reeds, you will know it as the bearded tit. It has a sweet, low, musical song, like the tinkling of tiny cymbals, which harmonises with its elegant form and plumage. Its general colour is light red ; head and neck, bluish-grey ; throat, greyish-white ; the fore neck is pale grey, passing into light red on the under parts ; bill, orange-yellow ; iris, bright gamboge-yellow. On each side of the base of the bill is a black mystical band of long hair-like feathers—hence its name. It is 6½ inches long by 7¼ in extent of wings—the same proportion as the long-tailed tit. Female similar, but not so bright, and wants the mystacial feathers. The next genus in this sub-family of the *Sylviana* is that of *Accentor*, of which we have two species, the hedge-accentor and the alpine-accentor.

THE HEDGE SPARROW OR HEDGE WARBLER.

(Motacilla Modularis.) *Linn.* *(Accentor Modularis.)* *Cuv.*

> "Behold within the leafy shade
> Those bright blue eggs together laid !
> On me the chance-discovered sight
> Gleamed like a vision of delight."—*Wordsworth.*

None of our little birds are better known or worse used than this gentle, unobtrusive bird, the bright blue eggs of which are so well known to every village schoolboy in Britain—reminding me of Wordsworth's "Poems referring to Childhood," where, for the first time,

> "Those bright blue eggs together laid,
> Gleamed like a vision of delight."

And many besides this then young poet of nature has taken his sister—perhaps his little calf-love sweetheart—to see them lying cosily in their nest, for he says—

> "She seemed to fear it,
> Dreading, tho' wishing to be near it."

Some of my young readers may have felt this indescribable rapture when seeing the little blue eggs of the common whin-sparrow for the first time—a rapture that cannot be explained. This handsome but modestly-attired little bird frequents our hedges and gardens, as it likes to be near the dwellings of man. It is also a native, and does not stray far from its birthplace; only in winter they draw nearer to us—like the robin, but without the familiarity of that red-breasted favourite. It is an early breeder, often begins to sing its love-song when snow is on the ground. On March 3rd, 1889, about six o'clock P.M., when the wintry sun was sinking behind Drumcarrow, I heard one sweetly singing at Govan's cottage out the links when there was seven inches of snow on the ground, showing that birds—like seed-time and harvest—keep their trysts with nature in spite of frost and snow; and yet I never see our little feathered friends cowering and chittering in a snow-clad hedge without recalling Burns' feeling lines on a "Winter's Nicht," when

> "Ilk' happing bird, wee helpless thing,
> That in the merry months o' Spring,
> Delighted me to hear thee sing;
> What comes o' thee?
> Whaur wilt thou cower thy chittering wing,
> And close thy e'e?"

And also on that similar verse in "Up in the Morning early"—

> "The birds sit chittering in the thorn,
> A' day they fare but sparely;
> And lang's the nicht frae e'en to morn,
> I'm sure it's winter fairly:"

And yet, before winter is done, and before the leaves are on the hedges, they begin to breed and lay those glossy, greenish-blue eggs—the lawful prize of every nest-hunting schoolboy, who often in wanton sport will smash them with heartless glee. They usually lay five eggs, and sit eleven days. The nest is made with fine roots, dried grass, and moss, lined with long horse hair. Like all nests they vary. I have got them composed of dried grass and fine roots, with little hair and no moss; others with much moss and little grass. Sometimes—as with humanity—over-care kills, for, on May 27th, 1858, I knew one so amply lined with horse hair as to be the death of the young. It was in a bush in a garden; I knew it with five eggs, but on the 27th there was only one partly-fledged young one lying on its back in the nest nearly dead, with three long hairs sticking out of its mouth. I tried to relieve it by pulling them out, but in vain. I next tried to pull them one by one, but they were so entwined round the entrails that they could not be drawn, and the bird died in my hands. On opening the gizzard I found the hairs round its inside, and forming a knot which had collected fatty matter and refuse of food which caused its death, as short hairs licked into the stomach of cattle form indigestible balls and cause their death. This was one of my most curious experiences in bird-nesting. I did not know what came of the other four eggs or birds. Had the solitary sufferer been larger I would have thought it a young cuckoo, which, after ejecting the young hedge-sparrows, had been choked by voraciously swallowing the hairs of its own nest as described—an apt illustration of King Lear's usage by his daughters, who, having parted with his sovereignty to them, his fool justly tells him—

> "The hedge-sparrow fed the cuckoo so long,
> That it had its head bit off by its young,"

for the young cuckoo edges out the young sparrows and reigns in their nest alone. The cuckoo selects the hedge-sparrows' nests (amongst others) to deposit her eggs; and White of Selborne pertinently says—"You wonder, with good reason, that the hedge-sparrows, &c., can be induced to sit on the egg of the cuckoo without being scandalised at the disproportionate size of the suppositious egg, but the brute creation, I suppose, have very little idea of size, colour, or number. The common hen, I know, when the fury of incubation is on her, will sit on a single shapeless stone instead of a nest full of eggs that have been withdrawn; and a hen turkey would sit on in the empty nest till she perished with hunger." I wish I had been more particular with this young bird, but there is no doubt of the fact that I knew the nest with five eggs, then found it with only one young bird as described, for I took note at the time, 35 years ago, when I was just learning my Ornithology direct from the book of Nature. The nest was one of the deepest of its kind I ever got—4½ by 3½ inches outside, 2⅛ by 1¾ deep inside, formed of moss and fine boxwood roots, thickly lined with long hairs and fine feathers. Although called the hedge-sparrow, it has no connection with the house-sparrow, though about the same size and colour, for no two birds are more dissimilar in habits. The one belongs to the soft-billed or insect feeders, the other to the hard-billed seed huskers. The one sings a sweet low song—even in winter; the other merely yelps or chirrups. At all seasons the hedge-sparrow flits and creeps about with the stealthy movements of the reedlings, always—like modesty—trying to escape observation, except during the courting season—a time which affects all creation. They then chant their little song with such a restless fluttering, beating time with its wings, jerking them up and down—like the starling when so engaged—as to deserve the name of "shuffle-wing." Their wings are hardly ever still—a habit patent to all naturalists. They seldom perch high, and run more than hop, in this coming nearer to the next genus—the wagtails, the true runners. They are not gregarious, even in winter you seldom see more than two or three together, and the plainness of their dress makes them less noticed. It is a peaceable bird, never quarrelling or mingling with others—in this respect a pattern to humanity, including kings and clowns. They do no harm in gardens, but help to clear them of caterpillars and insects. They also feed on seeds, and use quartz and other minerals seldom found in the gizzards of the *Sylviæ.* In this it resembles the lark, also in its more slender bill and plainness of colour, but is handsomely formed, which is better than gaudy dress. The general colour is brown, with darker spots; under parts, grey and brown; iris, also brown. Length, 6¼ by 8¾ inches in extent of wings; female similar, only a little less. There is another species called the Alpine accentor, but as I never saw it here I need not describe it further than it is like the last but larger, breeds in the holes and ledges of rocks, and also lays five greenish-blue eggs. The next sub-family is that of *Motacilla*, the wagtails, which forms the fifth group of the *Sylviadæ*, which includes the pipits.

SUB-FAMILY. MOTACILLINA. *Genus*, MOTACILLA.

We have three British wagtails, the black and white, or pied; the grey and white; and the grey and yellow. They are very active, especially in running after insects, and short quick sallies on wing. They are handsome birds, have long tails, from the perpetual motion of which they receive their name of wagtail. Their flight is rapid, and has the most typical undulation of all our birds. I have seen all three—summer and winter—at the Kinness Burn, near the harbour.

THE PIED WAGTAIL, OR WATER WAGTAIL, OR YARREL'S WAGTAIL.

(Motacilla Alba.) Linn.

"These find, 'mid ivied Abbey walls,
A canopy in some still nook;
Others are pent—housed by a brae
That overhangs a brook."—*Wordsworth.*

This is the most common of our wagtails. It is found chiefly with us about the Kinness and Swilcan Burns, the east and west sands, Kinkell Braes; but it is broadcast, like the flies, and found most where flies are most. I have seen it in May running in the gutter opposite my window in Market Street catching flies. It frequents margins of burns, rivers, ponds, or meadows, and the sea beach. In early spring a partial migration goes on from south to north. I have seen them in March, after a north-easterly gale, as if they had been driven back on their way north. To corroborate this, the *Scotsman* of date March 17th, 1888, says:—

> "At 6.30 P.M. to-day a large assemblage of pied wagtails *(Motacilla Alba)* settled on the General Post Office in Edinburgh for the night; there were sixty in one row on a narrow ridge to the west of the building, sheltered from the violent east wind, which had brought such a heavy snow-storm a few hours before. In the interstices of the stone fret-work over one hundred more were sitting. The pied wagtail is resident with us

in small numbers, but they migrate in large flocks along the west and east coasts, and I think those I saw to-day were on their spring migration to the north, along the east coast, and driven in by the violence of the storm; if so, the fact is interesting and worth recording as a very early migration, and a month before the swallows. I shall see if they roost there to-morrow."

The writer wrote on the 19th stating that—

"These birds roosted again last night in the same places as before, but are not there to-night. I think the rise in temperature and south-east wind have enabled them to cross the Firth and continue their migration."

This quite agrees with my observations here. They are fairly abundant here in winter, but they begin to migrate from the south in March, proceeding as far north as the Orkneys, and return south in October. With us they are seen at all seasons, and it is interesting to see them alight on a small stone amongst water, vibrating their body and moving their long tails up and down like a horizontal pendulum in perpetual motion, as boys use their arms when crossing some slippery ford; or to see them swiftly running after flies in a shallow stream, holding up their tails—like a little girl her petticoat when wading on the sands toying with the sea. When flies are near the surface they run with great rapidity, and catch them with such singular dexterity that their tiny feet make no impression on the softest mire. They half run, half fly so nimbly that their feet scarcely touch the surface, and are as expert on the watery sand or mire as swallows are in the air. This singular celerity is even more apparent in some swampy meadow where cows are grazing in the midst of flies. They run and snatch one fly then another before the first is swallowed, then dart to the right, wheel to the left, or spring a few inches—or fly some feet in the air, or pick them off the legs, noses, and bellies of the cows in ceaseless, wonderful activity, the cows paying no heed, for mutual interest makes strange friendships. They pair in April, and begin the universal law of reproduction, and, although not great songsters, they warble at this time a very sweet low song. Their nests are generally by the side of a burn or rocky bank by the seashore, on the trunk of a tree or a wall, or among loose stones or a rick of hay, but rarely on the level ground; one built near the wheel of a turning lathe in a shop near a burn, where the workmen went out and in, and where the young were reared till they flew. I have got them on the top of the Abbey wall, and on the old Culdean vault at the Priory, and by the side of the Abbey mill dam, as well as in a hole in an old rotten hulk at the harbour; even a human skull has been utilised for this purpose, as seen in the British Museum. The outside is composed of roots, dried grass, leaves and moss, lined with hair of all kinds, and some wool. The eggs five, sometimes six, greyish-white, freckled with darker grey, like the common sparrow's. On May 13th, 1884, I got one with six eggs a foot down a hole in a broken stanchion of the rotten hulk of the old sloop "Janet" (which carried the best stones of the Cathedral and our old Cross up the Firth of Forth to Portobello 150 years ago), now lying near the Shore Bridge. On May 12th, 1858, I got one with four fresh eggs six feet from the ground, resting on the outer edge of a cavity between the stones of that old vaulted building near the square tower; it was built with roots, moss, and some sea-weed, thread, worsted, and a few hairs; under the hair was a profuse supply of rabbits' fur, and the tip of a lady's boa. It was 4½ inches diameter, and only 2½ by 1½ inches deep inside—a strong, neat nest. Some of the roots were an eighth of an inch thick and seven inches long bent in it. On June 18th, 1858, when taking a walk near Kinkell Cave with my five dogs, one of the cockers and a terrier commenced yelping at a stunted bush on the rock; out scrambled three young wagtails—one flew down into the sea, both of the old birds flew after it, screaming with excitement, and actually tried to lift it out or drag it ashore. It was pitiful to see their efforts, and hear their wailing cries. I had no idea they had so much sense as to try and lift it or haul it ashore, using their wings as well as their feet and bills, and would have succeeded but for one of the terriers, which swam and brought it out. It was nearly dead—the dog being rougher than the birds. I put it beside the two which had remained in the nest; for years afterwards that stunted bush had a strange attraction for the dogs. I could never take that cocker out with me for a long walk in nesting time after this, for she gobbled up all the young birds she came across. On June 4th, 1889, I saw flown young wagtails catching flies for themselves. They have two or three broods in the year. Like several birds, the pied wagtail has a spring and an autumn dress. In winter the throat is white; in summer it is black; which caused a confusion of species, several authors confounding this wagtail with the grey and white, till Mr Gould and Mr Yarrel defined them, and established a separate species, called after Mr Yarrel, *Yarrelli*. It seems to be confined to the British Isles and Scandinavia.

The general colour in winter is—forehead, throat, belly, and two bands on the wing, white; crown of the head, crescent on the breast, back of the neck, rump, wing-coverts and tail, black; middle of the back, grey—sometimes black—hence, from the distinct white and black, called pied; the bill and feet are also black; iris, dark brown. Length, 7¾ inches, including the tail, which is 4 inches; extent of wings, 11½ inches. The tail is long and narrow, which when waved up and down gives the bird a graceful appearance, and hence its doubly appropriate name of pied-wagtail. Female similar.

THE GREY AND WHITE WAGTAIL.

(Motacilla Boarula.) *Linn.*

> "Close in sequestered lanes they build,
> Where, till the flitting bird's return,
> Her eggs within the nest repose,
> Like relics in an urn."—*Wordsworth.*

There is also confusion about this bird; some authors confound it with the pied-wagtail, which it resembles, only has less black on its head, throat, and back, and lighter grey. It has all the activity and dexterity of the last, with even more elegance of form, and the variegated black, white, and grey still more finely pencilled. I think it the true *M. alba* of Linnæus, but it is much rarer than the last. I have got its nest on the banks of the Kenly Burn, and at the river Eden; and got one in a disused drain pipe at the Abbey mill dam, with five eggs. It was loosely made of roots and dry grass, profusely lined with hair and wool, gathered from the park adjacent. When on a nest-hunting expedition to Tentsmuir on May 28th, I saw three on the cart road at Earlsha', and have seen it here at all seasons, but chiefly in summer. It also has a summer and a winter garb; hence it is difficult to determine the different species of wagtails. I have seen three different species at one time at the Kinness Burn, so it is little wonder that Yarrell has added another species, whether rightly or wrongly, after his own name. The grey and white one generally comes here in March, and shifts further south in October. The eggs, five to six, are less freckled and more tinged with brown than those of the last; found in similar places, and, like the bird, they are a little less. The male in summer has the head and upper parts bluish-grey; rump, yellow; throat, black; a white streak above the eye; under parts, yellow; wings, greyish-black; coverts, tipped with white. In winter the black of the throat becomes yellowish-white, and the belly pale yellow. Female similar.

THE GREY AND YELLOW WAGTAIL, OR YELLOW WAGTAIL, OR RAY'S WAGTAIL.

(Motacilla Flava.) Linn.

> "Come, Autumn, sae pensive, in yellow and grey,
> And soothe me with tidings o' Nature's decay;
> The dark dreary winter and wild driving snaw
> Alane can delight me—now Nannie's awa'!"—*Burns.*

Although set down by authors as a summer migrant only, I have shot it here in winter. On December 13th, 1855, I shot one along with a pied-wagtail on the west sands, and have seen it at all seasons. On January 9th, 1884, I saw several on the Links—weather mild; and on January 2nd, 1889, I saw one at the harbour; but they are not common. I got a nest on the banks of the Kenly in May with six eggs, two of which were fresh, four deep sitten, which I tested amongst water; the fresh sank, the others floated. I left them in the nest; the bird flew out at my feet as I was going to cross the burn near Lower Kenly farm. It was composed of roots, dry grass, and lined with hair. The eggs, pale brown, spotted with darker brown, $\frac{5}{8}^{1 6}$ inch by $\frac{1}{2}^{1 6}$. This species frequents arable land and sheep pastures as well as the sea coast, rivers, or burns, and generally builds on the ground in a field of peas or corn, or in a fallow field, as well as burnsides, and holes of dykes near water. Like all birds, there is much difference in their nests; some of moss and grass, lined with rabbits' fur; others, like a meadow pipit's, entirely of grass, lined with finer grass or roots, with neither hair, feathers, wool, nor fur. Like the two last, the grey and yellow wagtails are often confounded. The *M. Flava* of Continental authors being different from our own yellow wagtail first pointed out by Gould, and first specified by Ray—hence called Ray's wagtail—the Continental and rarer being the true *M. Flava*, and called the grey-headed yellow wagtail, sometimes the blue-headed quaketail. Macgillivray has made a separate genus of this bird and another, under the name of *Budytes*, or *Quaketails*—the blue-headed and the green-headed. The so-called blue-headed quaketail—although rare with us, being no other than the yellow wagtail of the Continent—the *M. Flava* of Linnæus. So little was it known in Britain as to be called by several authors *M. Neglecta*. Therefore ornithologists should pay particular attention to all our wagtails, as the two species of black and white, and the two grey and yellow are so much alike—yet different in their partial moulting in spring and autumn, as to give excellent ground for observation; while the wag, wag, of their tail being the same, and so unlike all other birds, makes them an interesting subject of research. This one is the handsomest, for, although a little less, its tail is longer, and gives it a more elegant appearance. The legs and bill are also more slender, and yellowish-brown instead of black, like the others. In winter the head and back are bluish-grey, tinged with green; rump, greenish-yellow; throat, greyish-white; lower parts, bright yellow (hence its name); iris, dark brown. In summer the grey of the throat becomes a jet black patch, like the pied, and makes it look a different bird. The female has the black patch tinged with grey, otherwise the same; a white line is pencilled over the eye; the female's tinged with yellow. The length of this elegant bird is 8 inches by 10¼ in extent of wings; the tail longer than its body, of twelve narrow, tapering feathers. The hind claw is long, and nearly straight instead of curved, which brings it nearer the next genus *Anthus*, and distinguishes it from the black and grey. It is interesting to see those handsome birds so nimbly running along the side of a burn, or shooting up into the air like feathered rockets after flies, or gently alighting on a pebble in a shallow stream, wag, wagging their long tails; poising themselves like an acrobat; vibrating as if their slender frames were too finely balanced to remain at rest; then off again—like a money grub in perpetual pursuit of his first law of life—making money; or killing weaker creatures to sustain themselves. They have no song, but a shrill cheep.

Genus ANTHUS—THE PIPITS

were classed with the larks till separated by Bechstein and Temminck. In the similarity of head, feet, bill, food, and running, the pipits resemble the wagtails more than the larks, hence are they linked together. Running, hopping, stalking, or waddling are all distinctive features in our feathered friends, and, like the form of bill or flight, could tell to which class they belong. For instance, wagtails, pipits, and larks, like the common hen, run after their food, while most small birds, like the house-sparrow, hop; others, such as the hoopoe and the crows, stalk with a swaggering gait, like a pompous bailie; while ducks and geese, formed for swimming as well as walking—having their legs far back, waddle; and those whose mission is to dive and swim—such as the auks and divers, stand bolt upright on their tails, and can merely shuffle their feet like a man ill with the gout. There is the same difference in flight, for, while the wagtails and pipits fly in undulating curves, kingfishers and dippers fly straight as an arrow, kites soar, owls float, kestrels hover, and starlings swim on the air.

THE ROCK OR SHORE PIPIT.

(Alanda Petrosa.) *Linn.* *(Anthus Aquaticus.)* *Bechst.*

> "Every subject's duty is the King's,
> But every subject's soul is his own,
> For there are no wings can fly from God."
> —*King Henry V.*

Like the yellow wagtail, this bird was confounded with others by early authors. It was first figured by Lewin in his work on "British Birds," as the "Dusky Lark," at the suggestion of Montague, who first discerned its distinctive features—strange that such a common bird, running so plentifully about our rocks and shores, should have been so long in being defined; it was next called *Alauda Obscura* in the "Index Ornithologicus;" then in the "Ornithological Dictionary" it appeared as the "Rock Lark," *Alauda Petrosa.*

Possibly the reason of its being so long unnoticed was its frequenting the more rugged parts of our coast. It is quite common about the rocks of St Andrews, from the "Doo Craig," near the club-house, to the harbour, and along the rocks at Kinkell. It frequents our rocks summer and winter, independent of frost or snow, and can defy want better than most birds, for each receding tide leaves its tiny food in winter—small mollusca or crustacea, amongst the sea weed; while in summer it has insects broadcast. Snow and ice have no terrors for it, as the ocean is master of its own domain—clearing the rocks and sands of snow by the sweeping broom of the sea. It is not gregarious. Its usual cry is a loud *weet*, *weet*, by which we call it *sea*-weet, which may be heard at all times, and their dusky forms seen nimbly running on the slippery rocks, or flying with their peculiar wavering flight at each receding tide in winter—much to the perplexity of my two cocker dogs, for nothing gave them greater pleasure or pain than yelping, scampering, and sliding over the slippery rocks after them. One of my notes, written 16th February 1856, says—"Went to Eden to-day with my gun; saw about 100 hooded crows and an immense number of different gulls on the West Sands, feeding on the great quantity of shell-fish driven ashore by the recent storm—verifying the old adage that 'it is an ill wind that blows nobody good'; and, as if rejoicing with them, the sky-larks were joyously singing above the Links—the first time I have heard them this year. Coming home by the sands at low water I shot a fine male and female rock pipit near the 'Doo Craig.' They are here in abundance on the rocks watching the receding tide." But although the birds are plentiful, their nests are ill to get, as they build in untrod places on the face of the rocky braes. The nest is composed of bent and the roots of marine plants, lined, like the meadow pipit's, with fine dry grass and fibres—sometimes with hair. It breeds early, and lays five eggs, like the lark's, dirty grey, speckled with darker brown. I have got them reddish-brown. If you come near its nest it hovers uneasily, with its jerky, uncertain flight, uttering its querulous cry of *weet*, *weet*, until you leave the place. Its love song is short and shrill, and generally sung on wing. It is larger than the meadow pipit, more robust, and darker brown; its bill is longer, but the claw of the hind toe shorter, which distinguishes them. It is 6¾ inches long, by 10¾ in extent of wings. General colour dark olive brown, blended with draker spots; bill, feet, and iris dark brown; female similar. It is a true St Andrean, and may be seen at all times of the year. On December 16th, after a fortnight's hard frost, I saw five of them and two wagtails alight in the Swilcan burn, and gleefully flutter and wash themselves in the shallow stream—the wintry sun shining brightly on their bath. And to show they are closely allied to the wagtails, on the 18th of October I saw a dozen wagtails and pipits running and catching flies together on the sands near this burn; the sun was shining, and the flies in abundance. A wagtail and a pipit alighted on an old branch lying in the burn, and I noted that the pipit wagged its tail up and down the same as the wagtail.

THE MEADOW PIPIT, TIT-LARK, OR TITLING.

(Anthus Pratensis.) *Bechst.*

"The little floweret's peaceful lot
In yonder grove that grows,
Which, save the linnet's flight, I wot,
Nae ruder visit knows."—*Burns.*

This plain-dressed, handsome little bird is more common than the last, and is found on hilly moorland as well as benty flats skirting the seashore; its grassy nest and dark brown eggs are well known to every nest-hunting schoolboy as the *sea-weet's*, and also to that unindustrious slattern the cuckoo, who, to save itself making a nest and rearing its young, often selects the little titling's nest to put her eggs in. One reason is both birds prefer open moors, like Tentsmuir, which provide an ample supply of Lepidopterous larvae and insects suitable to both, while the open nest proves a temptation to make the pipit a cuckold. It makes its beautiful cup-like nest on the ground, under a tuft of bent or grass; it is lined with dry grass as fine as horse hair—some of which being sometimes used in the lining. It lays four and five eggs in April, dark brown, freckled with still darker spots—amongst the darkest eggs we have. Often, when searching for eider duck's and other wild birds' eggs on Tentsmuir, I have got their nests in the middle of the muir. On May 2nd I got two with four fresh eggs each; one of the nests was lined entirely with fine grass; the other had some long horse hairs in it. On the 7th I got one with two fresh eggs, and on the 17th one with four deep-sitten eggs, which tells very fairly when they are to be found; but I have got them on our own Links earlier with five eggs. Its usual flight is short and abrupt; its usual cry—simply *weet, weet;* but in the love season it rises in the air by a tremulous and rapid flutter of the wings till about twenty yards up, then begins its short, pleasant song, and descends to the ground or a bush with motionless wings and extended tail, in a slanting direction, peculiar to itself, from April till the end of July. Its general colour is dark brown; under parts, yellowish white; neck, sides, and breast marked with dark brown oblong spots. It is easily known from the last by its size, lighter colour, and longer hind claw. At one time it had a twofold individuality owing to its summer dress being brighter than its winter one. In summer it was called the pipit-lark; in winter, the tit-lark. It is 5¾ inches long by 9½ in extent of wings.

THE TREE PIPIT.

(Anthus Arboreus.) *Bechst.* *(Alauda Trivialis.)* *Linn.*

> "She had cause for fear,
> As when a bird returning to her nest
> Turns to a tree beside, if she behold
> Some prying boy too near the dear retreat."—*Southey.*

This bird closely resembles the last, but is larger, being 7¼ by 11¼ inches. Its bill is stronger, and its hind claw more curved and much shorter to help it perching. Being so alike in colour and less common it often passes for it. It is not native, like the two last, but arrives here on the first of May and leaves in September. It frequents the borders of woods, and is never seen on moors or links like the meadow pipit. Like nearly all our migrants, the males come a week before the females, and as soon as they meet the male begins to flutter his wings and sing his little courting song; for, as Shakespeare makes Rosalind say to Orlando, in "As You Like it"—"Your brother and my sister no sooner met, but they looked; no sooner looked, but they loved; no sooner loved, but they sighed; no sooner sighed, but they asked one another the reason; no sooner knew the reason, but they sought the remedy; and in these degrees have they made a pair of stairs to marriage, which they will climb incontinent or else be incontinent before marriage; they are in the very wrath of love, and they will together; clubs cannot part them." He sings on the top of a tree (hence its name), or on wing as he slowly descends to the twig from whence he had risen. It is like the rock or meadow pipit, but superior. When rising from the tree he does not begin to sing until at his greatest height, only emitting the short twitter of *tsee, tsee*: but no sooner at his height than, like pride or ambition, he slowly descends and sings with wide-spread, motionless wings, and expanded, upturned tail, to the twig from which he arose, and does the same from the tree to the ground, but he seldom alights on the ground before alighting on a tree, hence the "tree pipit;" and never, like the others, or the lark, rises from the ground to sing. It makes its nest at the root of a tree, under a tuft of herbage or small bush, of moss, slender roots, and dry grass, lined with finer grass, and sometimes horsehair; eggs, four or five, which vary in size and colour more than most birds. Some are purplish-grey, spotted with brown; others flesh-coloured, spotted with black; and others pink, freckled over with dark red; more like those of the buntings than the pipits, and form the connecting link. They are larger than the meadow pipit's, $\frac{7}{8}$ by $\frac{5}{8}$. The nest is seldom far from trees or brushwood, usually on a grassy bank on the margin of a wood, if there be single trees, on which it delights to perch. In such a situation you are pretty sure to find it at the end of May, also in open woods by the side of a drive or footpath. It is ill to find, as it is cunningly concealed, and the bird cowers and runs several yards when it leaves or enters it. The females of all the pipits resemble the males. Like the rest it runs with ease in search of insects and worms. As water birds are divided into waders, swimmers, divers, and plungers, I think our land birds might be classified as scrapers, hoppers, runners, and perchers. There is another, called Richard's pipit, about the same size and colour, but as it is very rare in the south of England, and as I never identified it about St Andrews, I merely note it as a British bird. It also makes its nest on the ground, and has all the habits of the rest. The next family in this order of the *Insessores* is

FAMILY V.

THE AMPELIDÆ, OR FRUIT-EATERS.

The fifth primary division of the *Dentirostral Insessores*, distinguished by a short bill and wide gape—something like the swallows—to enable them to swallow the large berries and fruit on which they live.

In all the typical genera the hairs that fringe the mouths of the *Lanidæ* and other insectivorous groups are wanting. They are strictly perching birds, seldom on the ground; legs and toes short—the toes more or less joined at the base, the soles broad and rough to give firmer grasp. They are nearly all restricted to warmer climates than Europe—the typical genera in South America, where, in the thick and extensive forests, they find an ample supply of fruits and berries. The only member of the family found in Europe—at least in Britain—is the waxwing, *Bombacylla Garrula*, and only occasionally, but as I never saw it here I cannot call it a St Andrews bird, although sometimes flocks of them are dispersed over Britain, and feed on the berries of the mountain ash and others. One was seen at Inverness, another caught at Rothesfield, Markinch, on the 11th March 1893, and stuffed.

A RARE BIRD.—Mr Osgood H. Mackenzie, of Inverewe, writes as follows:—"A few days ago I was told by my servants that they had seen a curious bird in the Tournaig Garden, near here. Its crest seemed to have made a great impression on them, and so I fancied it might have been a hoopoe: but, fortunately, two days later, I saw it myself in the grounds here, apparently eating the few remaining berries on the Cotoneaster Simoni bushes. I could not fail to recognise the stranger the instant I saw him, and though I had never before come across a living bird of this species, I knew it at once to be the Bohemian waxwing or chatterer. It was extremely tame—quite sociable, in fact, and kept following me about and perching within a few yards of me; the brilliant yellow tips of its tail feathers and the crimson patches on its wings making it very striking in the bright sunshine. Occasionally it raised its crest, and in many ways it reminded me of the jay. I might easily have shot it, but could not make up my mind to fetch my gun, as it was so confiding. I have never before heard of the waxwing in this neighbourhood, though other rare birds, such as the rose-coloured pastor and the golden oriole, occasionally visit us. A few years ago I saw a male oriole in my birch wood, and a few days subsequently, early one morning, I heard its unmistakable and melodious notes in the same place, reminding me so of the cedar forests of the Algerian Atlas, where they were so abundant and where I had last heard their sweet songs. I shall hope soon, through the medium of the *Chronicle*, to hear more about my friend the chatterer, or about its companions, from whom it probably got separated, and who are probably still somewhere in this part of the North."—*Northern Chronicle.* [On the 11th March, the bird, or a similar one, was caught at Rothesfield, Markinch, and taken possession of by Miss Cooper) but it only lived about a fortnight. Perhaps the confinement and improper food hastened its death. It is being stuffed.]

The next division in this order of the *Insessores* is the *Conirostres* of Cuvier.

TRIBE III.

CONIROSTRES. *Cuv.*

This tribe includes all the birds of the two orders of Temminck — the "*Omnivores*" and "*Granivores*" — that is, *all*-eaters and *grain*-eaters; the crows and starlings being the typical *Omnivores.* The rest of the families in this extensive tribe—which includes the finches, buntings, larks, sparrows, linnets, &c.—feed chiefly on grain and seeds, therefore called *Granivores*, although such as the sparrows and larks feed chiefly on worms and insects; but, when hard pressed, every creature is omnivorous rather than starve, and none more so than man himself, who when pressed by hunger will eat his fellow-man.

FAMILY I.

FRINGILLIDÆ.

This family embraces all the genera known as the finches, or *hard-billed* birds, in distinction to the swallows, thrushes, warblers, wrens, fly-catchers, &c., which feed chiefly on insects, larvæ, worms, &c., and called the *soft-billed* birds. The more typical finches have their bill strong and conical, the cutting margins entire; but the *Alaudina*, the larks, come nearer the pipits, genus *Anthus*, which belong to the family of the *Sylviadæ*, in the last or *Dentirostral* tribe. The true larks incline to the pipits, as the thicker-billed larks lead into the buntings and finches, gradually conducting us back to the mountain finch in the *Fringillina*, and the goldfinch, siskin, and linnets. Therefore I begin the circle of this tribe with the larks, genus Alauda, of Linnæus.

THE SKY-LARK.

(Alauda Arvensis.) Linn.

"The laverock shuns the palace gay,
And o'er the cottage sings;
For Nature smiles as sweet, I ween,
To shepherds as to kings."—*Burns.*

The members of this genus inhabit links and grassy fields, and live chiefly on grain and seeds, but also on worms and insects. They are easily known from the pipits and warblers by their rounder head and more conical bill, also in singing while ascending perpendicularly into the air by spiral gyres. The best known and best songster of all the birds we have being the sky-lark—the theme of more poetic tributes and songs than any bird I know—and not without good cause; for, as that cheerful and varied song is poured forth on a fine summer morning as he rises up into the clear blue sky until lost to sight in his own unlimited cage "towards heaven's gates," where, as Tennyson says, "The larks in heaven's cope sing" till lost to sight in his own unlimited aerial cage, there is not, nor can be, more sweet delight in music heard than in the open field—where the green grass is the carpet, and the blue dome of space the roof of that illimitable operatic hall, whose threshold is immensity—than the little sky-lark's song—

For as he soars upon the wing,
And makes the sunlit welkin ring,
The lark to me's a better king
Than ermined clay;
Then, blithely, little lav'rock, sing
While bigots pray.

No wonder that "pard-like spirit" of poesy, Shelley, rapturously exclaims, in his poem "To a Sky-lark"—

"Hail to thee, blithe spirit—
Bird thou never wert—
That from heaven, or near it,
Pourest thy full heart
In profuse strains of unpremeditated art.

Higher still and higher
  From the earth thou springest,
Like a cloud of fire
  The blue deep thou wingest,
And singing still dost soar, and soaring ever singest.

The pale purple even
  Melts around thy flight;
Like a star of heaven
  In the broad daylight
Thou art *unseen*, but yet I hear thy shrill delight.

What thou art we know not
  What is most like thee?
From the rainbow clouds there flow not
  Drops so bright to see,
As from thy presence showers a rain of melody."

This reminds me of Tennyson's beautiful word-painted picture of "Spring"—

"Now wings the woodland loud and long,
  The distance takes a lovelier hue,
  And, drowned in yonder living blue,
The lark becomes a *sightless* song."

For on a clear day at the close of blustering March I have stood and watched the little sky-lark mount by fluttering bounds until he became an almost sightless speck high up in the azure blue—of what we reverently call heaven—seeing nothing but a speck, yet hearing that exquisitely sweet and cheerful "sightless song." I have stood and listened to it for half an hour at a time in rapt delight, which is corroborated by Mr Ure, of Dundee, who, in his "Notes of a Naturalist," says—"The lark's song is unequalled for variety, power, duration, and sweetness, when not too near. Struck by the fine song of one when high up, but still ascending, I took out my watch and sat on a bank. It was half an hour before he alighted. Some may sing longer, but this was the best and longest song I ever heard."

NOTE.—Thomson says, "The waste of music is the voice of love." And yet "an Edinburgh poulterer got an order to provide 400 larks for lark pie for luncheon at the opening of the Forth Bridge on March 4th, 1890." The bridge was formally opened by the Prince of Wales. The citizens of London do not patronise poulterers who deal in dead larks. After sacrificing 400 larks for such a gluttonous purpose, need we wonder if our best songster is getting scarce. We might as easily spare a prince or a duke as 400 of our cheerful skylarks. This little fact, along with that of 57 human lives being lost by accident during the seven years the bridge was in building might be added to its statistics.

He also sings perched on a clod or stump of a burnt whin—even on the grass—and in confinement, when hemmed in by his little wire cage, he will sing as cheerfully on his wee bit of turf as he does in the open field; but his native element is the air, as he ascends on fluttering wing, or hangs quivering above his mate, pouring forth his cheerful song of love; 'tis there that the full beauty of its varied melody is heard. I never hear a lark singing in a cage without a feeling of sorrow to see a creature so fitted for heaven confined in an iron prison two feet square. It begins its song as it rises, ascending perpendicularly in spiral circles, singing all the time, till he reaches his climax—sometimes so high as to be imperceptible, where he continues his protracted and varied song, nor ceases until he descends to near the ground, then stops abruptly, and comes down like a stone—as if the earth was not his sphere for song—

For always when ending his love-giving strain,
  And sinking low down to earth's grassy lea,
His carol will cease, when lowly again
  He sinks in the bent like a gem in the sea.

But sometimes they resume their song after alighting. They do not always sing above the nest, for I have seen them above the golfing course where there were no nests but the bare turf, and crowded with golfers. I have heard them singing at half-past nine at night at the end of June, after rain. The chief beauty of the lark's song is its protracted variety and cheerfulness. It begins with short chirps till about 30 feet up, then mounts into the air by spiral gyres, and when heard by man at early dawn, is often the best antidote to his lowness of spirits, as the more mellow notes of the mavis and blackbird sometimes induce melancholy at "dewy eve." No bird has such a protracted song, and those acquainted with it can tell without looking if the bird is rising or descending, which, philosophy's poet, Wordsworth, also notes near the close of his beautiful poem, "The Excursion"—

"Anon I rose
As if on wings, and saw beneath me stretched
Vast prospect of the world which I had been
And was; and hence this song, which, *like a lark*,
I have *protracted* in the unwearied heavens,
Singing, and often with more plaintive voice
To earth attempered and her deep-drawn sighs,
Yet centreing all in love, and in the end
All gratulant, if rightly understood."

When ascending there is a wild impatience in its notes—a quiet composure, with brief pauses, when hovering at its height, and a gradual sinking of the strain when descending, quite unmistakable, which Tennyson, perhaps unconsciously, alludes to in three different poems. When rising, he says—

> "And morn by morn the lark
> *Shot up and thrilled in flickering gyres.*"

When at its height, he as truly says—

> "Now rings the woodland loud and long,
> The distance takes a lovelier hue,
> And, drowned in yonder living blue,
> *The lark becomes a sightless song.*"

And, when descending, he exquisitely tells us that—

> "*The lark could scarce get out his notes for joy,*
> *But shook his song together*, as he neared
> His happy home, the ground."

He also makes his "Miller's Daughter" say—

> "Each morn my sleep was broken thro'
> By some wild sky-lark's matin song."

All who have heard the sudden outburst of the sky-lark's song at earliest dawn when all is still—not even the bleating of a lambkin heard—can appreciate this happy allusion, only equalled by this in one of his later poems—

> "The lark first takes the sunlight on his wing,
> But you, twin sister of the morning star,
> Forelead the sun."

And regarding the cheerfulness of the lark's song Wordsworth says—

> "Fancy, who leads the pastime of the glad,
> Full oft is pleased a wayward dart to throw,
> Sending sad shadows after things not sad;
> *But ne'er could Fancy bend the buoyant lark*
> *To melancholy service.*"

Which he intensifies by saying—

> "Hearing thee, or others of thy kind,
> *As full of gladness and as free of heaven,*
> I, with my lot contented, will plod on,
> And hope for higher raptures when Life's day is done."

When alone with Nature in his "Excursion" he alludes to the lark as—

> "Boldly seeking pleasure nearer heaven,
> On wings that navigate cerulean skies."

Then, angrily, in his "Borderers," exclaims—

"That dismal moor—
In spite of all the larks that cheered our path,
I never can forgive it."

In his poem on "Liberty" he has also a fine allusion to a skylark caged—

"Who can divine what impulses from God
Reach the caged lark, within a town abode,
From his poor inch or two of daisied sod?
O yield him back his privilege!"

Then asks the question so applicable to all—

"Is there a brilliant fondling of the cage
But gladly would escape through blithe air
Into strange woods?"

A LARK THAT DID NOT LOVE LIBERTY. — A correspondent of the *Spectator* says:—"My friend, James Shanock, three years ago, caught a young lark, and it has been pouring out its song ever since then from its cage, and a very sweet note it is. Some little while ago, as the afternoon was sunny, the cage was hung outside in the garden at the moment another lark was carolling in the air, and Shanock's bird rose from the cage, which was only covered with a fine net, and in which there must have been a rent, and disappeared in the direction of the other lark. My friend seeing this at once began to whistle, holding up the cage to attract his pet back again, and in a very short time down it came to his feet, and waited patiently while he gently replaced him in his cage. There were three witnesses."—*March 20th, 1893.*

This shows that birds, as well as man, can acquire a second nature.

Prosaic and methodical Southey also notes its cheerful exuberance—

"I remember as her bier
Went to the grave, a lark sprung up aloft
And soared amid the sunshine, carolling
So full of joy that, to the mourners' ear,
More mournfully than dire or passing bell
The joyous carol came, and made us feel
That, of the multitude of beings, none
But man was wretched;"

And in his "Roderick, the last of the Goths," he truly says—

"We heard the lark, who, from her airy height
On twinkling pinions poised, pour'd forth, *profuse*,
In thrilling sequence of *exuberant song*,
As one whose *joyous nature overflowed*
With life and power her rich and rapturous strain."

Nor was the lark unsung by our own unfortunate poet, Fergusson, for in his fine song of the "Lea Rig," which Burns copied, he sings—

Nae herds wi' Kent or collie there
  Shall ever come to fear ye, O ;
But lav'rocks whistling in the air,
  Shall woo, like me, their dearie, O !"

And in his "Drink Eclogue," he says—

" Nae stream but kens and can repeat the lay
  To shepherds streekit on the simmer brae,
  Wha to the whistle, wi' the lav'rock bang,
  To wauken flocks the rural fields amang."

In another poem he makes melancholy Sandy say—

' Ance I could hear the laverock's shrill-tuned throat,
  And listen to the clattering gowdspink's note."

But none of all our poets sang more in praise of the skylark than our national bard, Burns, nor mentions it more. In "Hallowe'en" he tells us that—

" Amang the brackens, on the brae,
    Between her an' the moon,
  The de'il, or else an outler quey,
    Gat up an' ga'e a croon ;
  Poor Leezie's heart maist lap the hool;
    Near lav'rock height she jumpit,
  But miss'd a fit, and in the pool
    Out-owre the lugs she plumpit,
        Wi' a plunge that night."

And in his fine ode to "The Mountain Daisy" crushed by his plough, he says—

" Alas ! it's no thy neebor sweet,
  The *bonnie lark*, companion meet
  Bending thee 'mang the dewy weet !
        Wi' spreckled breast
  When upward-springing, blithe, to greet
        The purpling east."

In his song to "Menie" he also says—

" And when the lark, 'tween light and dark,
    Blithe waukens by the daisy's side,
  And mounts and sings on flittering wings,
    A woe-worn ghaist I hameward glide."

This is exquisitely true to nature, as all know who have heard the lark 'tween light and dark, at earliest dawn, when, as Southey says—

"The nightingale not yet
Had ceased her song, nor had the *early lark*
Her dewy nest forsaken."

In his "Lament of Mary, Queen of Scots," with equal discernment Burns says—

> "Now lav'rocks *wake the merry morn,*
> Aloft on dewy wing;"

And in "Spring has clad the grove in green" he also sings—

> "The waken'd laverock warbling springs,
> And *climbs the early sky,*
> Winnowing blithe her dewy wings
> *In morning's rosy eye.*"

And in his beautiful but waesome song, "My Nannie's Awa'" he sings—

> "Thou laverock that springs frae the dews o' the lawn,
> The shepherd to warn o' the *grey-breaking dawn,*
> And thou mellow mavis that hails the night fa',
> Give over for pity—my Nannie's awa'."

In his early cheerful songs he also alludes to the lark. In his "Merry Ploughman" he says—

> "The laverock in the morning she'll rise frae her nest,
> And mount in the air wi' the dew on her breast,
> And wi' the merry ploughman she'll whistle and sing;
> And at night she'll return to her nest back again."

And in "Brose and Butter" he rants—

> "The laverock lo'es the grass,
> The moorhen lo'es the heather;
> But gie me a braw moonlight,
> Me and my love together."

Also in "The Lover's Salute to his Mistress" he praises her by singing—

> "The lintwhite in his bower
> Chants o'er the breathing flower;
> The laverock to the sky
> Ascends wi' sangs o' joy,
> While the sun and thou arise to bless the day."

And in his ode to "Delia" he as praisingly sings—

> "Sweet the lark's wild-warbled lay,
> Sweet the tinkling rill to hear;
> But, Delia, more delightful still
> Steal thine accents on mine ear."

To "Fair Jenny" he says, in praise of his favourite bird—

> "Where are the joys I have met in the morning,
> That *danced to the lark's early song?*
> And where is the peace that awaited my wandering
> At evening the wild woods among?"

And with "Phillis the Fair" he also couples the skylark, for—

> "While larks, with little wing,
> Fanned the pure air,
> Tasting the breathing spring,
> Forth I did fare;
> Gay the sun's golden eye
> Peep'd o'er the mountains high;
> Such thy morn! did I cry
> Phillis the Fair."

He could not even write in praise of his kind patron without introducing the lark:

> "I crave thy friendship at thy kind command;
> But there are such who court the tuneful Nine—
> Heavens! should the branded character be mine!
> Whose verse in Manhood's pride sublimely flows,
> Yet, vilest reptiles in their begging prose,
> Mark how their lofty, independent spirit
> Soars on the spurning of injured merit!
> Seek not the proofs in private life to find;
> Pity the best of words should be but wind!
> So, *to heaven's gate the lark's shrill song ascends,*
> *But grovelling in the earth, the carol ends.*"

Nor is it forgotten in his "Holy Fair," when face to face with Nature—

> "Upon a simmer Sunday morn,
> When Nature's face is fair,
> I walkèd forth to view the corn,
> And snuff the caller air;
> The rising sun owre Galston muirs
> Wi' glorious light was glintin';
> The hares were hirplin' down the furs;
> *The lav'rocks they were chantin'*
> Fu' sweet that day."

In his "Humble Petition of Bruar Water," the same love for the lark is seen—

> "The sober laverock warbling wild
> *Shall to the skies aspire;*
> The gowdspink, music's gayest child,
> Shall sweetly join the choir;
> The blackbird strong, the lintwhite clear,
> The mavis mild and mellow;
> The robin pensive Autumn cheer
> In all her locks of yellow."

But we need not wonder at his love for the lark, and for wild birds generally, for in the opening lines of his "Brigs of Ayr" he says they were his teachers—he calls himself

> "The simple Bard, rough at the rustic plough,
> *Learning his tuneful trade from every bough;*

The chanting linnet, or the mellow thrush,
Hailing the setting sun, sweet, in the green thorn-bush;
The soaring lark, the perching redbreast shrill,
Or deep-toned plovers, grey, wild-whistling o'er the hill."

They were all his teachers. Indeed, the songs of birds were part and parcel of his own—their very hoots and screams correctly noted—from the eagle to the wren—from the midnight owl to the soaring lark—all proving that Burns told the truth when saying he learned his "tuneful trade from every bough," and was truly indebted to his teachers, our feathered friends, for many of his exquisite ideas; still further proved by the following stanza, which he said "is among the oldest of my printed pieces, and composed when I was seventeen"—

"I dreamed I lay where flowers were springing
Gaily in the sunny beam,
Listening to the wild birds singing
By a falling crystal stream."

The "Sonnet on his Birthday," even in winter, shows who were his teachers—

"*Sing on, sweet thrush, upon the leafless bough;*
Sing on, sweet bird, I listen to thy strain;
See aged Winter, 'mid his surly reign,
At thy blithe carol clears his furrowed brow."

His ain "Bonnie Jean" is seen and heard in every bird, for he sings—

"I see her in the dewy flowers,
I see her sweet and fair;
I hear her in the tuneful birds,
I hear her charm the air.
There's not a bonnie flower that springs
By fountain, shaw, or green,
There's not a bonnie bird that sings
But minds me o' my Jean."

And when comparing the myrtle groves of other lands, he sings—

"Far dearer to me are yon humble broom bowers,
Where the blue-bell and gowan lurk lowly unseen,
For there, lightly tripping amang the wild flowers,
A-listening the linnet, aft wanders my Jean."

In the most pathetic of all his love-songs—an unhappy but *true* love-tale—the birds are still his teachers on the "Banks and Braes o' Bonnie Doon"—

"Ye banks and braes o' bonnie Doon,
How can ye bloom sae fresh and fair;
How can ye chant, ye little birds,
And I sae weary, fu' o' care?

Thou'll break my heart, thou warbling bird,
That wantons through the flowering thorn;
Thou minds me o' departed joys,
Departed—never to return!

Aft ha'e I roved by bonnie Doon,
To see the rose and woodbine twine;
And ilka bird sang o' its luve,
And fondly sae did I o' mine.
Wi' lightsome heart I pu'd a rose,
Fu' sweet upon its thorny tree;
And my fause lover stole my rose,
But, ah! he left the thorn wi' me."

And in his "Elegy on Captain Mathew Henderson" (although the lark is not specially mentioned), the same close observation of his feathered teachers is seen—

"Mourn, ye *wee songsters o' the wood;*
Ye *grouse that crap the heather bud;*
Ye *curlews calling through a clud,*
Ye *whistling plover;*
And mourn, ye *whirring paitrick* brood!
He's gane for ever.

Mourn, *sooty coots*, and *speckled teals*,
Ye *fisher-herons, watching eels,*
Ye *duck* and *drake, wi' airy wheels*
Circling the lake;
Ye *bitterns, till the quagmire reels,*
Rair for his sake.

Mourn, *clam'ring craiks at close o' day,*
'Mang fields o' flowering clover gay;
And, when ye wing your annual way
Frae our cauld shore,
Tell thae far warlds wha lies in clay,
Wham we deplore.

Ye *houlets, frae your ivy bower,*
In some auld tree or eldritch tower,
What time the moon, wi' silent glower,
Sets up her horn,
Wail through the dreary midnight hour
Till waukrife morn!"

Nor could he write an elegy on "Tam Tamson" without the birds—

"*Rejoice, ye birring paitricks a',*
Ye cootie moorcoocks crousely craw,
Ye maukins cock your fud fu' braw
Withouten dread;
Your mortal foe is now awa',
Tam Tamson's dead."

Nor the lady's lap dog "Echo" die without introducing them—

"*In woods and wilds, ye warbling throng,*
Your heavy loss deplore;
Now half extinct your power of song,
Sweet 'Echo' is no more."

Nor could he cross a moor without introducing them—

"Out o'er yon muir, out o'er yon moss,
Whare gor-cocks through the heather pass,
There wons auld Colin's bonnie lass,
A lily in a wilderness."

In his song on "Peggy" the same close observation is evident—

"The *moorcock springs, on whirring wings,*
Amang the blooming heather:
The *partridge loves the fruitful fells,*
The *plover loves the mountains*;
The *woodcock haunts the lonely dells,*
The *soaring hern the fountains;*
Through lofty groves the cushat roves,
The path of man to shun it;
The *hazel bush o'erhangs the thrush,*
The *spreading thorn the linnet.*"

He also makes Bess at her spinning wheel sing—

"On lofty aiks *the cushats wail,*
And echo cons the doolfu' tale;
The *lintwhites in the hazel braes,*
Delighted, rival ither's lays.
The *craik among the clover hay,*
The *paitrick whirrin' o'er the ley.*
The *swallow jinkin' round my shiel,*
Amuse me at my spinning-wheel."

And, as the duet of love, he makes both Willie and Philly declare—

He—"*As songsters of the early year*
Are ilka day mair sweet to hear,
So ilka day to me mair dear
And charming is my Philly.

She—The little swallow's wanton wing,
Though wafting o'er the flow'ry spring,
Did ne'er to me sic tidings bring,
As meeting o' my Willy."

And, in his "Charming Month of May," he declares—

"*The feather'd people you might see,*
Perch'd all around on every tree,
In notes of sweetest melody."

Also—

> "When rosy May comes in wi' flowers
> To deck her gay green-spreading bowers,
> The crystal waters gently fa',
> *The merry birds are lovers a'.*"

And, as his test of constant love, he declares—

> '*While birds rejoice in leafy bowers,*
> While bees delight in opening flowers,
> While corn grows green in summer showers,
> I'll love my gallant weaver."

So we see a lassie could not like a weaver without the birds. And in his song to "Menie" he correctly sings—

> "The *wanton coot the water skims,*
> *Among the reeds the ducklings cry,*
> The *stately swan majestic swims,*
> And everything is blest but I."

On "Craigie Burn Wood" he also pensively sings—

> "I see the spreading leaves and flowers,
> *I hear the wild birds singing;*
> But pleasure they hae nane for me,
> While care my heart is wringing."

Equally observant of his teachers is his song on "Afton Water"—

> "Thou *stock-dove, whose echo resounds through the glen,*
> Ye wild *whistling blackbirds in yon thorny den,*
> Thou *green-crested lapwing thy screaming forbear*—
> I charge you disturb not my slumbering fair."

In his smallest "Fragments" he introduces birds, for instance—

> "Auld Ayr ran by before me,
> And bicker'd to the seas;
> *A cushat croodled o'er me,*
> *That echoed through the braes.*"

Birds of all kinds seem to have been his teachers, for he says—

> "While briers an' woodbines budding green,
> And *paitricks scraichin' loud at e'en,*
> An' morning poussie whidden seen,
> *Inspire my muse.*"

Also—

> "As on the banks o' wandering Nith,
> A'e smiling summer morn I strayed,
> And traced its bonnie howes and haughs,
> *Where linties sang* and lambkins played,
> I sat me down upon a craig,
> *And drank my fill o' fancy's dream.*"

Even the gaunt heron arrests his attention, for he says—

"The grave, sage heron easy picks his frog,
And thinks the mallard a sad, worthless dog."

And to our Scotch representatives in the House of Commons he says—

"God bless your honours a' your days
Wi' sowps o' kail and brats o' claise,
In spite o' a' the thievish kaes
That haunt St Jamie's!
Your humble poet sings and prays
While Rab his name is."

Even the sparkling "e'e" of one of his fair favourites is likened to a hawk—

"And maun I still on Menie dote,
And bear the scorn that's in her e'e?
For it's jet, jet black, and *it's like a hawk*,
And it winna let a body be!'

Just fancy a woman's "e'e" like a hawk that "wouldna let a body be." But all his similes are correctly true of the birds; for instance, in his song to "Lovely Davies," where he says—

"*The eagle's gaze alone surveys*
The sun's meridian splendour."

Or, as he wrote off-hand to that other dark-haired beauty he met on the streets of Mauchline—

"*Her flowing locks, the raven's wing,*
A-down her neck and bosom hing;
How sweet unto that breast to cling,
And round that neck entwine her!"

And, even when wishing "Bess" dead, he wants a bird to sing on her grave—

"Bitter in dool I lickit my winnin's
O' marrying Bess to gi'e her a slave;
Blest be the hour she cool'd in her linens,
And *blithe be the bird that sings on her grave.*

Nor was the Battle of Killiecrankie complete without a bird—

"The bauld Pitcur fell in a fur,
And Clavers got a clankie O;
Or I had fed an Athole gled,
On the braes o' Killiecrankie O."

Neither was a walk by the seashore complete without one when parted from Clarinda—

"Along the solitary shore,
While *flitting sea-fowl round me cry;*
Across the rolling, dashing roar
I'll *westward* turn my wistful eye."

Or, as he says—

"Before I saw Clarinda's face
My heart was blithe and gay,
Free as the wind, or feathered race
That hop from spray to spray."

Even Hope is represented by our bird-poet, for he sings—

"And Hope has left my aged ken,
On forward wing for ever fled."

In "Tam o' Shanter" howlets arrest his attention, for he says—

"Kirk Alloway was drawing nigh,
Whare ghaists and houlets nightly cry."

And as for Captain Grose, he swears you'll find him

"By some auld, *howlet-haunted* biggin',
Or kirk deserted o' its riggin',
Some eildritch part,
Wi' deils, they say—Lord save's—colleaguin'
At some *black* art."

And yet, as he was "wae to think on hell, for auld Nickie Ben's sake," so was he vexed for the owl hooting in an auld kirk, for he says—

"Nor is thy voice, sad bird, less sweet,
That sadness tunes it and that grief is there,
That Spring's gay notes, unskill'd thou canst repeat,
That Sorrow bids thee to the gloom repair."

And when Willie stole a kiss from sleeping "Blooming Nellie"—

"*As flies the partridge from the brake*
On fear-inspiréd wings,
So Nellie, starting, half awake,
Away affrighted springs."

In fact the birds were his teachers everywhere, and my only apology for these many haphazard quotations is, I want to show that our national *bard* is also our national *bird-poet*, and that he told the truth when saying—

> "The simple bard, rough, at the rustic plough,
> *Did* learn his tuneful trade from every bough;"

and I hail this unassuming history of the birds found about St Andrews to tell it, for in nearly every one of his poems and songs allusion is made to some bird or other. Even in his "Address to the Deil" (through his grannie's teaching) is "Auld Sootie" likened to a drake, for he says—

> "A'e dreary, windy winter night,
> The stars shot down wi' sklentin' light,
> Wi' you, mysel', I gat a fright,
> Ayont the lough!
> Ye, like a rash-bush, stood in sight,
> Wi' waving sough.
>
> The cudgel in my hand did shake,
> Each bristled hair stood like a stake,
> When, wi' an eldritch stoor, quaick, quaick,
> Among the springs
> *Awa' ye squatter'd, like a drake,*
> *On whistling wings.*"

When he sings of "A Lass and she was fair," he tells us—

> "*The blithest bird upon the bush*
> Had ne'er a lighter heart than she;"

But that—

> "*Dangers, eagle-pinioned, bold,*
> Soar around each cliffy hold,
> While *cheerful peace, with linnet song,*
> Chants the lowly dells among."

And, when painting piracy and murder, he paints with the birds—

> "*A flight of bold eagles from Adria's strand,*
> *Whose pounces were murder, and terror their cry.*"

Also—

> "The *fell harpy-raven took wing from the north,*
> *The scourge of the seas, and the dread of the shore!*"

And, as our bird-taught poet ends his "Winter Night" with the crow of a cock, so will I end these varied quotations in his words—

> "I heard nae mair, for chanticleer
> Shook aff the pouthery snaw,
> And hailed the morning with a cheer—
> A cottage-rousing craw.

But deep this truth impress'd my mind
Through all His works abroad ;
The heart—benevolent and kind—
The most resembles God !"

But

The bird which upward soars with many a bound,
Has still its nest upon the lowly ground.

For, like the pipits, the sky-lark scrapes a hollow in the grass or bare field, and makes its nest of dry roots and grass, in which it lays from three to five dark eggs, freckled over with darker spots, about the same size as the wood-lark's, but darker, $\frac{7}{8}$ long by $\frac{5}{8}^{1\,6}$. She sits close, but when forced to rise, flies low with a tremulous flight, and alights close by, or hovers around, with a low churr, which brings her mate. When bringing food her nest can be discovered, as she hovers over and drops beside it. It lays early in May, and has two broods. The first flies in the end of June, the second in the end of August ; but on April 27th I got a nest on the links with three deep-sitten eggs, and on May 24th one with four young ones, which flew. It was in a clover field, in a hollow scooped out by the birds to make room for the nest—a wise provision to allow the scythe or cutting-machine to pass over it. The top was flush with the ground—I write from personal observation. The nest was lined with fine dry grass, but, when the young were half ripe, the herd boy got some horse-hair and lined it ; the old birds paid no heed, but fed their young as before. As a rule, birds do not forsake their nests though you handle their eggs or young, unless you come with a sudden rush. Sometimes when the nest is exposed by the scythe they will make a cover of dry grass with a hole in it. Mr Hewitson gives an instance of this—proof positive that the nest is sunk, for the scythe cuts close, and would have cut the eggs or young unless in a hollow. In April 1890 a friend of mine, on putting up a fence round a grass park, got a nest with eggs a foot from the fence ; to preserve it from the cows he put a circle of wire netting round it, fourteen inches in diameter, and thirty inches high. Appreciating the kind intention, the old birds flew in and out of this open tunnel, and reared their young till they flew. They roost on the ground, the barest places, and often become the prey of weasels at night, as of birds of prey during the day. It is said that starlings, as well as carrion crows, also prey upon their eggs when searching for worms, but I doubt this. I never observed them, but, if so, the more need our best songster should be preserved by man, and the less cause for lark pies. Like all good married pairs they keep together while family cares are going on, but in winter they are gregarious, and fly in large flocks. They live about thirty years; the wood-lark thirteen.

THE WOOD-LARK.

Alauda Arborea. (Linn.)

"Teach us, sprite or bird,
What sweet thoughts are thine;
I have never heard
Praise of love or wine
That panted forth a flood of rapture so divine."—*Shelley.*

The wood-lark is rare here—rare even in Scotland—being chiefly confined to the south and west of England; but that is no reason why my young readers should not be on the look-out for it, for many rare birds are found where least expected, and, as it is plentiful in the south of Britain, I don't see why it should not pay us a visit in the north, especially since drainage and other assimilating influences has given Fife as good crops and pastures as Devonshire, where it is most abundant. I saw it at Magus Muir in June 1888; also at Clatto and Kincaple, which shows it breeds in Fife. Burns, in his "Address to the Wood-lark"—

"Oh, stay, sweet warbling wood-lark stay,
Nor quit for me the trembling spray;
A hapless lover courts thy lay,
Thy soothing, fond complaining,"

was just using a poet's license, yet correctly, for the wood-lark's song surpasses even the sky-lark's in sweetness though not in variety; therefore he was not far wrong when he exclaimed—

"Again, again that tender part,
That I may catch thy melting art;
For surely that would touch her heart,
Wha kills me wi' disdaining.

Say, was thy little mate unkind,
And heard thee as the careless wind?
Oh! nocht but love and sorrow joined
Sic notes o' woe could wauken.

Thou tells o' never-ending care,
O' speechless grief and dark despair;
For pity's sake, sweet bird, nae mair!
Or my poor heart is broken!"

The same license is used in his song of "The Banks of Cree"—

"It is Maria's voice I hear!
So calls the wood-lark in the grove,
His little faithful mate to cheer,
At once 'tis music and 'tis love!"

The same discerning license is taken in his lines "On Sensibility," to his "much honoured friend and patron, Mrs Dunlop"—

"*Hear the wood-lark charm the forest,*
Telling o'er his little joys;
Hapless bird! a prey the surest
To each pirate of the skies.

Dearly bought the hidden treasure
Finer feelings can bestow;
Chords that vibrate sweetest pleasure
Thrill the deepest notes of woe."

White of Selborne perhaps more correctly, but not so sweetly, says—

"While *high in air, and poised upon his wings,*
Unseen, the soft, enamour'd wood-lark runs
Thro' all his maze of melody; the brake
Loud with the blackbird's bolder note resounds."

For, while the sky-lark rises and falls perpendicularly as he sings, the wood-lark hangs poised in the air when singing. It generally sings on wing, but it differs from the sky-lark by sweeping the air in widely-extended circles, instead of rising perpendicularly, and will sometimes sing nearly an hour without intermission. It sometimes sings on a tree, but never on the ground. Mr J. S. Wood says in the *Naturalist*:—

"The lark ascends until it seems no larger than a midge, and with difficulty seen by the unaided eye, yet every note will be clearly audible half a mile from the nest over which it sings. It never ceases to sing for a moment—a feat which seems wonderful to human beings, who find a song of six or seven minutes, though interspersed with pauses, is more than trying. Even a practised public speaker, though he can pause at the end of each sentence, finds the applause of the audience a welcome relief. The singer and speaker need use no exertion but their voice, yet the bird pours out a continuous song, and all the time has to support itself in the air by continuous use of its wings."

It breeds early—hence an early singer; often heard in England soon after Christmas, and will continue till the end of autumn. Owing to its exquisite power of song, like Beauty it is much sought after, and often pays a heavy penalty by the loss of liberty in the dull environs of a cage. It frequents enclosed grounds and heathy districts in the vicinity of sheep walks and old fir trees, and feeds on grain, insects, and worms. Like the sky-lark, it has its nest in a hollow on the ground, under a tuft of grass or low shrub. It is more compact, and can be lifted whole from the hollow. It is composed of dry grass and roots mixed with moss, and lined with fine grass and some hairs. They lay four or five dusky eggs, smaller and lighter in colour than the sky-lark's; when fresh they are sometimes of a fine rose colour, easily known from the sky-lark's and pipit's. They are ¾ in. by ⅝ in. Though less, the wood-lark so closely resembles the sky-lark as hardly to be distinguishable. The bill, however, is more slender; the tail and hind claw shorter. The feathers of the head longer and of a reddish tint. General colour of the upper parts, brownish black, edged with yellowish brown; under parts, yellow, spotted on the neck and breast with black; wing coverts, tipped with white; iris, hazel; above the eye a streak of yellowish white, better defined than that of the sky-lark. The sky-lark is 7½ inches long by 14¾; the wood-lark 6¾ by 12½, which will be a guide to distinguish them. The females are less, but the same in colour. It is not gregarious, like the sky-lark, in winter, only in families of six or seven, but in severe winters flies along with sparrows, finches, buntings, and sky-larks, about stackyards. Besides the sky and wood-larks, there is another called the shore-lark, or Alpine-lark *(Alauda Alpestris)*; but as it has not been seen to my knowledge about St Andrews—seldom in Britain—I need only say it is like the sky-lark in size and habits, but richer coloured. The upper parts, pale red; the under parts, white; the head and breast, black; throat and band over the eyes, yellow in winter and white in summer, which may help to identify this beautiful bird—even about St Andrews. There is another and still rarer species called the crested-lark *(Alauda Cristata)*, which in colour, eggs, and habits also resembles the sky-lark. I bid my readers go to the fields with Nature. The birds will amply repay your pleasant study, for, as young Hugh Macdonald, the Glasgow block-printer, rambler, and poet, wrote to Professor Wilson—"You will see the mavis singing in the same bough wi' the wee wren, the blackbird drap doon frae the tap o' the fir tree and jink aboot the hedge-roots wi' the humble hedge-sparrow, the laivrock drap doon on the braided lea beside the clamorous craik, and see the daffodil bend its golden head as if to listen to the converse o' 'the wee crimson-tipped flower.'" Shakespeare draws a lovely picture of Nature and Nature's love in "Romeo and Juliet"—

> *Juliet*—" Wilt thou begone? it is not yet near day;
> It was the nightingale, and not the lark,
> That pierc'd the fearful hollow of thine ear;
> Nightly he sings on yon pomegranate tree,
> Believe me, love, it was the nightingale.
> *Romeo*—It was the lark, the herald of the morn,
> No nightingale; look, love, what envious streaks
> Do lace the severing clouds in yonder east,
> Night's candles are burnt out, and jocund day
> Stands tiptoe on the misty mountain tops;
> I must be gone and live, or stay and die."

The next genus is Genus *Plectrophanes*, or lark-buntings. The snow-flake or snow-bunting being the type of the three species found in Britain, and the only one I have identified about St Andrews, it is well named the *snow*-flake, at least here, for it is seldom seen flying about our west sands in its usual small flocks unless the fields are covered with snow. One of my notes will suffice—"This is the 16th of December 1888, and, so far as gone, is a snowless, almost iceless winter. I have not yet seen the snow-flakes, although I have been out the links and sands almost daily for some weeks past on the lookout for them." But on the 3rd and 8th of January 1889, I saw several flocks of from seven to forty on the sands, and still no snow, showing there is no hard and fast rule with nature.

THE SNOW-FLAKE OR SNOW-BUNTING.

Plectrophanes Nivalis. (*Meyer.*) *Emberiza Nivalis.* (*Linn.*)

"Then my dial goes not true; I took this lark for a bunting."

—*All's Well that Ends Well.*

The snow-flake was first separated from the true buntings by Meyer from their different form of bill, wings, and feet. The bill is shorter, the cutting edges less marked. The wings longer; first quill longest instead of the third; more adapted for long flights: feet formed more for running than perching; hind claw long and nearly straight; thus intermediate between the larks and buntings. It is a native of the Arctic regions, breeds in high latitudes, and only comes to us when driven off by ice and snow We seldom see them about St Andrews until driven from the fields to the seashore by the hard white hand of Winter. It used to be multiplied into three species, the *snow-bunting*, *tawny-bunting*, and *mountain-bunting*, owing to the varied plumage by age and sex. Indeed, as you see them flying about the sands in their usual small flocks the difference is apparent, some with white wings, others nearly all brown. The white-winged ones are the adult males—the first mark of the bird-stuffing ornithologist—as I once was. Alas! the general fate of pretty or rare birds; however, a few of the whitest can be spared, but their white wings are missed out of their little flocks. They arrive in Britain in October in large flocks, chiefly young birds, which were called *mountain-buntings.* Then the old females with some young males and a few adult males, not yet in winter livery, arrive, and were called the *tawny-buntings.* Next come the true snow-buntings, chiefly adult males in their winter garb, but not in such large flocks as the two first. This separation of the sexes and young with the females earlier than the adult males is not confined to the snow-flake, but is a natural law with several migratory as well as other birds, such as the woodcocks, whose females come first; female chaffinches also separate from the males in small distinct flocks, and remain so till the pairing season, while the males may be seen in large flocks along with other graniverous birds in winter. In open winters they prefer mountainous districts, and feed on the seeds of grasses, and only descend to the low grounds (preferring stubble fields) when their favourite resorts are covered with snow; hence, by the same law, are driven to the seashore when the fields are covered by their natural enemy. Like the larks they run with celerity, but never perch on trees. On the approach of spring they leave us for more northern regions, advancing by degrees within the Arctic Circle, where they breed; but I have seen them on our links and sands on the 29th of March in fine weather, when our sky-larks were singing and breeding. Their migration extends to the coasts of the Polar Sea, and are found in the most extreme northern latitudes our navigators have yet reached. So the little winter visitor of our links and sands is a true *snow-flake* indeed! It builds its nest in the fissures of rocks or amongst loose stones, composed of grasses, lined with the fur of the Arctic fox, deer's hair, and feathers. Captain Lyon got a nest in the bosom of a dead Esquimaux child on Southampton Island, in the parallel of 62°—one of their most southerly breeding-places in North America. They breed in Greenland, Davis Straits, Iceland, and on all the shores of America, from Chesterfield Inlet to Behring Straits. They also breed in Norway and Finland. Mr Wolley got their nests on the highlands of Feroe. He says :—

> "In these dreary spots a simple song draws one's attention to the handsome cock-bird, which sits on a piece of rock cheering his sombre coloured mate brooding in some sunless hole close by, where the ground is covered with rough stones. The nest is compactly built of the finest grass stalks, and lined with feathers. In such an artificial cradle I left five young snow-finches upon a mountain in Finland on the 22nd of June ; they were about a week old."

They lay from four to six eggs, from the dark colour of the lark's to the light and variegated hue of the greenfinch's ; others spotted over with purple spots. They are about the size of the sky-lark's, the bird a little less, $6\frac{3}{4}$ inches long by 13 ; the bill is yellow, feet black, and iris brown. The plumage, like the eggs, is subject to much variety, hence the multiplication of species. In summer the male has the head, neck, under parts, part of the tail, and a patch on the wing, white ; the rest black ; in winter the upper part of the head, cheeks, and a band on the neck, reddish-brown ; the female similar, but more brown on the head and breast, less white on the wings. The young have the crown of the head yellowish-brown ; throat, chestnut ; nape of neck, yellowish-grey ; wings with some white feathers ; the rest black, edged with white and brown—the *mountain-finch* of mistaken authors. Instances are recorded of their breeding in Scotland. Macgillivray says he saw a family of eight on the Grampians on the 4th of August 1830 ; but they do not breed here. The other two species are *Plect. Lapponica*, formerly known as the Lapland lark bunting, and *Plect. Picta*, but they are very rare, and I never saw them here to my knowledge, so need not describe them. The next genus which naturally follows the lark buntings is

Genus EMBERIZA, OR TRUE BUNTINGS.

This genus embraces the four well-known species found in Britain—the corn-bunting, yellow-bunting, reed-bunting, and the cirl-bunting. Their bill is hard, strong, conical, and sharp pointed, well suited for living on grain and seeds. The tomia or cutting edges of both mandibles bend inwards, and are compressed at the point for that purpose. The upper is smaller and narrower than the under one, having its roof provided with a hard bony knob; but, while living chiefly on grain and seeds, like all sensible creatures they change their diet in summer by also feeding on insects and larvæ.

THE COMMON OR CORN BUNTING.

(*Emberiza Milaria*). *Linn.*

> "The winter it is past, and the summer's come at last,
> And the little birds sing on every tree;
> Now every thing is glad, while I am very sad,
> Since my true love is parted from me."—*Burns.*

This bulky bird is well named the corn-bunting, for in spring and summer it is usually seen near corn-fields perched on the highest twig of a hedge, or on a paling or dyke enclosing them. During the courting and matrimonial season their queer song or *skirl* and odd manner of flight, with their feet dangling down, are quite unique. I know of no other bird which has the same habit. Their unmusical but not unpleasant *twee*, *twee*, *twee*, *twee*, *tweė-ee* may be heard as you pass along almost every road which skirt corn fields. It is something like the *deil*, *deil*, *deil*, *deil tak thee-ee* of the yellow bunting—only not so mournful—a repetition of short unmusical notes, ending in a long note. I heard it as early as the 26th of January 1893, and its singular habit of elevating its wings and dangling its legs when flying, while its mate is sitting on her eggs close by, cannot fail to be observed by every lover of nature. They are not so commonly observed at any other time, for, after their domestic duties are done, they either collect in flocks, and are mistaken for larks, or mingle with other birds, such as larks, finches, other buntings, and sparrows, and fly along with them in winter unnoticed. Although it remains all year and generally distributed, it is not very plentiful in any district. It begins to breed in April, and lays from four to six eggs, about the size of the sky-lark's, but lighter in colour, pale indigo, spotted with large dark spots, something like the reed-bunting's, but, being larger, are easily known from any other bunting's. The nest is made of twigs, roots, moss and dry grass, lined with finer grass, sometimes a few hairs. It is loosely formed, which does not matter, as it is usually placed on or near the ground, in a tuft of grass or weeds, or at the root of a low shrub in the open field some distance from the hedges. The general colour is yellowish-brown above, tinged with red on the head ; each feather fringed with dark brown ; the under parts, pale yellowish-grey ; the feet, yellowish-red ; iris, dusky brown ; the bill, which is strong, brown and yellow. The bird is 7¼ inches long by 13 in extent of wings, but seems larger ; the female similar, but less.

THE YELLOW-BUNTING, OR YELLOW-HAMMER.

(Emberiza Citrinella.) *Linn.*

> " Their groves o' sweet myrtle let foreign lands reckon,
> Where bright-beaming summers exalt their perfume ;
> Far dearer to me yon lone glen o' green bracken,
> Wi' the burn stealing under the lang yellow broom."—*Burns.*

This common but beautiful bird is found broadcast about St Andrews, but rarer in the north, and not mentioned in the fauna of the Orkneys. It is called the yellow-hammer, which I think should be yellow-ammer, for I don't see what such a handsome, pretty bird has got to do with a hammer. In my young days it was called *yellow yowt*, as a name of familiarity —if not despite, for the eggs of this pretty, yellow painted bird were considered the lawful prize of all nest-hunting schoolboys, who used to play at *periwinkie* with them—that is, placed them on the road, then each, blindfolded and armed with a stick, tried to smash them; the game being won by him who broke them. This old bit of senseless rhyme shows the silly prejudice against this bonny bird—

> "Hauf a puddock, hauf a taed,
> Hauf a *yellow yeldrin*,
> You'll get a drap o' *deevil's bluid*
> Ilka May mornin'."

It used to be called the "yellow yeldrin," and "devil's bird," but why can only be answered from the limbo of superstition, where sits and broods the dark enemy of Peace and Truth. I remember even yet the eerie feelings I had when, about eight years old, in 1831, I got the eggs out of my first bird's nest—a yellow yowt's—at the side of the burn near the old lawmill. A little schoolfellow took me to see a "yellow yowt's nest at the side o' a burn," and gave me the eggs, which I took with such a queer feeling of doing wrong that, on being scolded by my mother for bringing them, I could not rest until I wandered back and replaced them in that "nest at the side o' a burn." But because it is seen on every roadside, like the bonny dandelion flower, this handsome yellow bird is passed by unnoticed. Like the rest of its *genus* it is deficient in song, confined to the repetition of a single note, longer and higher at the end. It is something like *deil*, *deil*, *deil tak' thee-ee*. Unmusical and dolorous though it be, its very sadness, as one saunters along the wayside, gives it an interest of its own, as it sits on some old dyke or the topmost twig of a hedge, and harmonises with the whistle of the blackbird in the brake, and the more cheerful song of the lark in the sky. Its usual cry is *chit*, *chit*, *chirr*. It breeds and sings later than most small birds—a proof that it has more than one brood in the year, for singing and breeding—like "*freedom* and *whisky*," as Burns says—"*gang* thegither," although, I may add, *drunkenness* and *ruin sleep* thegither. It makes its nest in low bushes, or under a tuft of grass in a hollow scraped out for the purpose by the side of a burn, bank, or ditch, and lays four or five eggs of a pale purplish white, peculiarly marked with veins of chocolate-red—unlike any other bird's except the cirl bunting's, but, being larger cannot be mistaken for them. It also builds on trees, and thus comes nearest the finches, while its longer hind claws allies it to the larks. On May 13th, 1858, a gardener showed me a nest in a kitchen green with three fresh eggs. On cutting the green the day before with the scythe the bird flew up; on looking down he saw the nest with two eggs then. I examined the scraped out hollow; the top was slightly below the surface, as if the bird intended to baffle the scythe. It was composed of roots and grass, lined with horse hair. It was 4½ inches in diameter, and 2½ deep over all, and 2¼ by 1⅝ deep inside. On May 16th, same year, I got a nest with one egg on a wall pear tree four feet up. The frame was very bulky, bigger than a mavis's, but the inside usual size—showing a tree was not the usual place. But as this bird forms the link between the larks and finches, it shows that Humboldt was right in saying the universe was governed by universal law, not by a capricious Deity—even in the building of birds' nests, each after its kind, and instinct illustrates this better than multitudinous-minded reason. On May 27th, 1885, I got another on the branch of an apple wall tree in the same garden, with five deep-sitten eggs, 4½ feet from the ground, made of hemlock stems, roots, and grass, lined with fine grass and hair, loosely but finely formed—the thickest stems at the base, then finer till mingled with hair inside. Some of the stems were 18 inches long by ¼ inch thick; no barley, wheat, or oat straws—these apparently avoided. It was near a mavis's nest, also in a wall tree five feet up, with five fresh eggs. It was nearly as large as the thrush's, 6 by 3 inches outside, and 2½ by 1½ inside. I got another, same day, in a garden at the Swilcan Burn, three feet up in a berry bush, but the usual place is herbage. Like the corn-bunting, food chiefly grain and farinaceous seeds. In winter they collect in flocks, and often mingle with linnets, finches, and sparrows. Amongst stubble they move by very short leaps, with their breast near the ground; when disturbed, crouch motionless. The sky-lark has the same habit. They are shyer than chaffinches and others they associate with. When perched on a tree in windy weather they crouch close, draw in their neck, and depress their tail, as if afraid of falling. They do not run with the same ease as snow-buntings, wagtails, larks, or pipits. Their flight is rapid and undulating; one peculiarity is the speed and unerring certainty with which they descend from a height to settle on a particular twig that arrested their attention. If there is a flock the dexterity by which they all perch abruptly, with outspread tail to stay their rapid descent on their respective twigs is remarkable. In April they select their partners with less ado than most birds, and quietly set about their domestic duties. The general colour of the male is bright yellow, varied with olive green, and a line of brown on each side of the head. The breast and sides, back, and wing coverts, yellowish red ; hind part of the back, bright chestnut, margined with yellow ; tail feathers, brownish black, the four centre ones fringed with yellowish red ; legs and feet, yellowish brown ; iris, light brown ; bill, short and slender ; tail, long. The female has less yellow on the head and neck, and under parts more streaked with orange. The young resemble the female till the first moult. Length, seven inches by eleven in extent of wings. When its nest is harried, no bird shows greater signs of grief. It lingers about its rifled home for days, but possibly its dolorous dirge-like note deepens the expression.

The Reed Bunting.

(Emberiza Schœniculus.) *Linn.*

"Her *looks* were like a *flower in May*,
Her *smile* was like a *summer morn* ;
She trippèd by the banks of Earn
As light's a bird upon a thorn."—*Burns.*

This bird was called the *coaly-hood* in my young days, from its black head or hood. It is common here, but chiefly on marshes where there are reeds ; several bred on our links. Their black heads and handsome shapes were oftener seen on the top of whins near the Swilcan Burn than now, owing to the removal of the whins for the ladies' golf course. It is more slender than the yellow bunting, but its flight the same, rapid and undulating. It also alights abruptly on its selected twig. Its apology for a song is even more monotonous, and is only heard in the breeding season, when perched in a listless attitude on the top of a bush or whin. It might be called the *whin-bunting* as well as the *reed-bunting*, at least here, for I used to see it as often amongst whins as amongst reeds. Like the last, it does not breed till the end of April. In winter it associates with other graniverous birds. Its general food is seeds, insects, and larvæ ; usual breeding place amongst reeds, or in a tuft of grass, but I have found it in the centre of a whin on the ground on our links. When amongst reeds both birds and eggs have been confounded with the sedge warbler's (*Salicari Phragmitis*). The eggs, five ; greyish purple, spotted and veined with dark red, like the chaffinch's, about the same size,

$\frac{3}{4}$ by $\frac{5}{8}$ inches—less than those of the yellow hammer. The nest also of dry grass and roots, lined with finer grass and hair. The one before me, which I got at the side of a whin on the links, June 5th, 1855, with three fresh eggs, is composed of dry grass, profusely lined with hair, some horse hairs fourteen inches long, cow's hair, and a lot of fine white hair. Macgillivray says:—"Although stationary in England, it is migratory in most parts of Scotland, departing in October and reappearing in April." But I have found them here in winter as well as summer, which one of my notes when forming my collection shows:—

> "January 26th, 1856.—I got a fine male snowflake lying dead at the side of a dyke near the links. Walked to Seggie Hill farm—about five miles, had my gun, shot a male stonechat feeding on a heap of manure near the Guardbridge, and, on a hedge near Seggie farm house, *I shot a fine male reed bunting* (which I stuffed and still have). *I saw another near the Moutrie burn*, but did not shoot it."

It is well named the black-headed bunting, for the male in summer has the head and throat black as ink, with a white collar round the neck, which shows the black still more; sides of the breast, belly, and under tail coverts also white. The general colour of the back and wings, bright chestnut; each feather black in the centre; the rump, bluish grey; two middle tail feathers like the back, the rest fringed with red; the two outer marked with white. In winter the feathers of the head and throat are margined with yellowish-brown; legs, flesh coloured; toes and iris, brown. The female has the upper part of the head pale red, the band round the neck, yellowish-grey; under parts, brownish-white; breast and sides, streaked with brown; back, wings, and tail like the male but paler. The young resemble the female. Length of male, $6\frac{1}{4}$ inches, and $9\frac{3}{4}$ in extent of wings; female $\frac{3}{4}$ of an inch less. There are other two—the cirl bunting *(Emberiza Cirlus)*, and the ortolan bunting *(Emberiza Hortulana)*. The first is like the yellow bunting, but the male is distinguished by its black throat and the bright yellow crescent on the fore neck. Although I have not identified it here, that is no reason why it may not be found in Fife as well as in Devonshire and Cornwall. It generally makes its nest in furze or a low bush near the sea coast; nest and eggs like the yellow bunting's. The other is rarer, and, as far as I know, does not breed in Britain. It resembles the last; might be mistaken for the female yellow bunting; plentiful on the Continent; generally has its nest in a hollow scraped out amongst light sandy soil for rye; eggs and nest like the reed bunting's. Having said thus much about some of our feathered friends, I feel induced to add a note written at the time.

On the Birds I Saw in a Walk to Kinaldy.

"June 3rd, 1855, a lovely morning; I am going out for a ramble to see what birds I meet on the road to Kinaldy wood—about four miles south from where I live in Market Street. First, there are two sparrows sitting on the high dyke opposite my house, the male crying *yellup*, *yellup*, and his wife chiming in with *yellup*, *yellup*, *chir*, *chir*, *r*, *r*. On my way down by Abbey Park a pretty male green linnet is perched upon that elm tree, mute, and *his* wife on the next tree, also mute; but I have heard the male sing a very sweet low song. When near the shore bridge I heard the *chink*, *chink* of the chaffinch—he is a favourite of mine, as much for his lively habits as for his lovely plumage. I have heard him sing as sweet a low song as any of our birds. I have lain at the foot of a tree in April and heard the sweetest little song I ever heard, and have been surprised to see it came from a male chaffinch amusing himself and his little bride—almost 'wasting its sweetness on the desert air,' as Gray has it—half hidden by the branches over my head. Going up by the Grange hedges, there goes the *deil*, *deil*, *deil tak' thee*, of the yellow hammer—another favourite of mine common here; though bird-nesting boys, like the rifle brigade, give no quarter to eggs or young—'conscience making no cowards' of them when at their murderous work; yet it is plentiful, a proof that Nature is no enemy to the bonny yellow bunting now sitting on the highest twig emitting its long melancholy *chee-ee*. There is another bird with a black head sitting on the hedge further up the brae; it is the reed bunting, but all I hear him utter is a short *cheep*. He will surely have some other note to express the joys and sorrows of life than that; the trees 'clap their hands,' the rivulet has its murmur, and the reed bunting will surely have some other way of expressing its gratitude for life than that unmusical *cheep*. Ah! there are the sky-larks soaring and pouring out their cheerful joy above these grassy parks—sending forth louder praise in their varied but ever-cheerful song. And below them I see two common white-throats popping out and into that hedge, the male singing a loud and consequential song; there, I have alarmed it, and, as if to try bass, hoarsely cries *to-wy*, *to-wy*. These fussy little birds are common here I see ; so is that robust bird flying low over the corn field with its legs dangling down ; there it alights on the hedge again, and begins to *skirl*—it is the common corn bunting, bigger than the lark, and stouter formed. That little brown bird moving so stealthily in the hedge is the hedge-sparrow—a shy, gentle bird, the very opposite of the pert house-sparrow I left yelluping on the dyke in Market Street. These black-coated, parson-like rooks over in that field have better memories than some human ones, in search of the first law of life—money or grubs, for they never forget to search for their varied food at each particular time of the year ; and these three thieving kaes (jackdaws) are no doubt on their way to join them. That handsome bird singing so sweetly on the tree above the hedge is the willow wren, come to breed and brood and spend the winter with us. *Croak*, *Crouk*, there goes the hoarse cry of the carrion crow. I know they breed in that strip of tall larch and Scotch firs (now cut down), for I have got their nests with eggs and young, along with those of sparrow-hawks, kestrels, and long-eared owls (nearly all gone now, for the gamekeepers are shooting and poisoning all they can). When I got to Kinaldy the keeper told me it was nearly all his work, the destruction of such *vermin* (he called them) as hawks, owls, magpies, and carrion crows ; he was paid for it, so searched and shot incessantly. Having found one of their nests, he allowed all the eggs to be laid, then shot the old birds and broke the eggs. I picked up two poisoned eggs and some dead crows. *Cuckoo*, *cuckoo*, *cuckoo*. The first time I have heard the one-noted ‘stranger of the grove’ this year, ‘the plain-song cuckoo grey,’ as Shakespeare calls it ; he is not plentiful about St Andrews. As I entered Kinaldy wood I was welcomed with *cheeka*, *cheeka*, *chee*, in a loud shrill tone from the little cole-tit, one of our smallest *true* vermin destroyers ; there it flits from tree to tree, running up the trunk or hanging back downwards on the horizontal branches, in untiring search of insects and *their* eggs, like a tiny carrion crow, or the paid keeper himself—a lively little fellow, with a loud pipe for such a wee bird. From the proud hop and merry twinkle of that black-eyed robin, I see his family are not far off ; nor, possibly, is that blackbird’s skulking amongst the whins ; he likes to be out of sight that fellow, except at early dawn or dewy eve, then, perched upon some high tree, you may hear his loud fearless whistle ; but through the day he is shy and retiring, like that bonny speckled mavis I see running, cowering along the other side of the hedge. What bird is that flying at such a rate, so angrily crying *churr, r, r?* That is the missel thrush, but he disappeared within the wood as I came out of it. What a lot of brown linnets here flying in pairs; are their young ones nearly ripe and preparing for a second brood? I cannot tell, but there they are; that one perched on the fence has the reddest rose-tinted breast I ever saw a linnet have—almost as red as a robin's, but this is summer, and that his gayest attire—no wonder he is sometimes called the 'rose-linty.' On approaching Lingo grass parks, up springs, screaming, the curlew and several lapwings, both breeding here. There they go, wheeling, jerking, and diving close to my head, as if they disputed my right to invade their nursery."

So I sat down on the old dyke, and after writing this hurried note retraced my steps, and reached Market Street in time for tea, pretty tired after my long but interesting walk, in which, like Bottom, the weaver, in "A Midsummer Night's Dream," I had seen

> "The finch, the sparrow, and the lark,
> The plain-song cuckoo grey,
> Whose note full many a man doth mark,
> And dares not answer, nay."

SUB-FAMILY FRINGILLANA.

The next links in Nature's bird chain are the sparrows, finches, and linnets, of which we have a fair share about St Andrews. The generic features of the group are—bill, strong and conical, enabling them to husk grain or seeds, in distinction to the weaker bills of those which live chiefly on insects; legs and feet, like the buntings, are as well adapted for perching as hopping; are birds compact in form, of medium length of wings and tail. I shall begin with

Genus PASSER.

THE HOUSE-SPARROW.

Passer Domesticus. (*Ray.*) *Fringilla Domestica.* (*Linn.*)

> " He that doth the ravens feed,
> Yea, providentially caters for the sparrow,
> Be comfort to my age !"—Old Adam in "*As You Like It.*"

The house-sparrow is the most common, if not most destructive, bird in Britain—as common in crowded London as at John o' Groat's. It seems to claim the "divine right" to reign over the dwellings of man, with more chance of continuity than the old "divine right of kings" to reign over his body and soul. It is specially suited to live beside him, being, like himself, omnivorous—as much at home hopping on a street picking up crumbs, or the droppings of a horse, as perched on a stack picking out grain. Fergusson aptly says—

> " The farmer's sons, as yap* as sparrows,
> Are glad, I trow, to flee the barras,
> And whistle to the plough and harrows
> At barley seed ;
> What writer wouldna gang as far as
> He cou'd for bread ?"

His great follower, Burns, never mentions it, although he names almost every other bird—possibly because it does not sing, or because he was a farmer, and Ferguson a "writer chiel'." It makes its clumsy nest in holes, spout heads, under tiles or eaves of houses, in ivy, or on trees near houses. When on trees it is large and loosely arched over with hay, straw, worsted, strings, rags, paper, or anything handiest, profusely lined with feathers ; lays from five to eight oblong greyish-white eggs, spotted over with darker spots. It breeds early. I have seen them building on the 21st of January, and have seen half-fledged young in August—proof they have several broods in the year. I have seen three cocks bitterly fighting for one hen—in this, too, imitating humanity. They are as multifarious in nesting-places as omnivorous in their food. One built and had eggs in the furled topsail of a laid-up sloop in the harbour ;

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* Yap, hungry.

another on the top of a street lamp, and sat on her eggs although the lamp was lit nightly. One reared six young ones behind a spare room grate. The occupant of the adjoining house was surprised one morning to see the sparrow perched upon the handle of the tea-kettle on the fire, having entered the wrong flue. Though bold and familiar, it is alert and wary, and, like a good church attender, can take care of itself—hardy, thrives everywhere. In summer it destroys larvæ, moths, and butterflies, with which its young are fed, making amends for the havoc on the ripening grain. It has no song but *yellup*, *yellup*, and when a parliament is held in some hedge or tree in the pairing season, the Babel-like chorus and pugnacity of the males are only equalled in the House of Commons when the *closure* and *gag* are used to thrust an unworkable Home Rule Bill down its members' throats, as on Thursday night, July 27th, 1893. Impudence is shrewd, like the fly on the lip of the lion; being in the Zoological Gardens in London, August 1888, I saw a cock-sparrow alight and rest on the head of a rhinoceros, no doubt knowing the huge brute was powerless to hurt it; that was true judgment—would that *reason* had as much discernment when tampering with superior power. Yet I read in the *Scotsman* that an "alligator and a sparrow were seen to engage in a battle near Darien. The alligator provoked the bird by snapping at him, which in turn flew furiously at its ugly antagonist, aiming with precision at its eyes. The alligator finally gave up the contest, and sought safety from the sparrow's attacks by hiding itself under the water." I wonder if our pert little friends prepare a cosy home for winter? On October 7th, 1885, I watched a score of them fluttering about the old Castle, alighting on projecting bits of stones, peering into and entering every hole, as if looking for winter quarters—the day was fine. And on November 16th I saw one collect a lot of hair in my back court and fly off with it, as I have seen them in spring enter my dovecot and fly off with the feathers to line their nests. If they prepare for winter, let humanity take a lesson. For hardiness the sparrow represents February, as the robin December, for Spring says—

> "The robin steals your praise away,
>   In vain you brave the winter's cold;
> For all have eyes for feathers gay,
>   But no one marks your jerkin old."

As a proof of quick nest building, I got one, May 13th, 1861, on a wall pear tree at the Priory, with one egg in it. The gardener told me he pulled the nest down from the same spot and broke the eggs on the 9th, so this was quick work, to build a house and begin to replenish it with embryo young in four days. If one of the old birds is shot, the other soon finds a mate, and the breeding goes on. White, of Selborne, tested this; he says—"When sparrows deprive my martins of their nests, as soon as I cause one to be shot, the other, be it cock or hen, presently procures a mate, and so for several times." Many birds do the same, which proves there are always plenty of single unmarried ones to select from in the field of nature. Like the rook, do sparrows more harm than good? In the Norfolk Chamber of Agriculture Mr Gurney read a paper—"Are sparrows so destructive as to be destroyed, considering the caterpillars they eat?" He said:—

> "A large farmer in Chelsea stated that sparrows, assisted by other small birds, had done the country £770,094 worth of damage in twelve months. If this were true, it might be doubted if any consumption of caterpillars could make amends, as it is only the young which are fed with them."

Having shown what extraordinary ravages caterpillars made, he said:—

> "Sparrows had been proved to eat the caterpillar of the destructive gamma moth as well as the young fed with it."

After giving a list of the insects destroyed by sparrows, he said:—

> "They also did a great deal of good by eating the seeds of the knot-grass, chickweed, and corn-bind weed; also the buttercup, ribwort, plantain, dock, mouse-ear, and wild spinach. At the same time they occasionally ate turnip seed, hay, clover, and trefoil seed. He had seen from 100 to 150 little seeds in the crop of one sparrow, and as many as 321 chickweeds were found in one—showing their great capacity."

He admitted the damage done by sparrows to farmers, but, he said:—

> "The fairest way to *judge the damage done was by dissecting the bird.* About 75 per cent. of an *adult sparrow's food* was corn—chiefly barley and wheat—and some oats, the remaining 25 per cent. being seeds 10 per cent., green peas 4, small beetles 3, caterpillars 2, flying insects 1, the other 5 per cent. being bread and other things; while in *young sparrows*, up to 16 days, not more than forty per cent. was corn, whilst about 40 per cent. consisted of caterpillars, and 10 per cent. of small black beetles."

This, too, at an important time of the year to check insect pests. He observed that—

> "In ordinary circumstances sparrows did more harm than good, but it was counterbalanced by their destruction of noxious insects and seeds; and,

if the balance of Nature were upset by exterminating the sparrows, we *might have to pay an unknown penalty;* and, with this in view, it might be wise for the Norfolk Chamber of Commerce, their being kept in bounds but never exterminated."

This is good advice, for, as Burns says, even of the good and ill of humanity, when fairly weighed, it is difficult to judge—

> "Then at the balance let's be mute,
> We never can adjust it;
> *What's done* we partly may compute,
> *But know not what's resisted.*"

It is a safer advice than a "Young Farmer's," who says—"An average farm will have 1,000 sparrows; each sparrow will consume 4 ounces of grain daily during the 30 days the crops are exposed to their ravages, thus causing a loss of 25 quarters of grain (about £25)." He therefore "strongly advocates their extirpation." But he forgets this £25 is all the 1,000 sparrows cost as wages in destroying the larvæ and seeds of so many noxious insects and weeds. He might as well count the cost of his human servants' wages, without the good they do in return, in harrowing, weeding, &c. He says—"In autumn they go in large flocks, when one can kill from 10 to 20 if the gun is loaded with sparrow-hail, also in winter when frost is long and snow is deep. Another way is to get a corn riddle and go round your stacks after dark, where they lodge, and by simply laying the riddle quickly on the stack you will often capture half a dozen at a time." He would also advocate poison, but thinks that "not only game, but human lives are endangered. A more simple, perhaps more effectual, plan is to mix oatmeal with dry lime, which will act as well as poison, and with no bad results." So a "Young Farmer" would give no quarter, but extirpate our sparrows utterly. "The Epping Sparrow Club" (of which Sir H. Selwin-Ibbetson is President) took the same view, for the press exultingly says—"In four months its members have destroyed 6000 sparrows." But they don't say how many noxious insects and weeds have been spared by that, for if you destroy the sparrows the insects and weeds will increase, and if you destroy the sparrow-hawks so will the sparrows increase—in spite of "sparrow-hail." Nature herself is the best judge and the best balancer of the creatures she has made, and those who infringe on her laws will share the penalty, as the sheep farmers did when the mice overran their pastures after the owls and kestrels were almost extirpated. Burns, a young farmer himself, took a far more sensible view when the plough turned up the mouse's nest—

> "I doubt na, whyles, but thou may thieve;
> What then? Poor beastie thou maun live!
> A daimen icker in a thrave
> 's a sma' request;
> I'll get a blessing wi' the lave
> And never miss't."

A daimen icker in a thrave is only one ear of corn in 24 sheaves—a sma' request indeed, for the good even *they* may do in the wise economy of nature. I have often seen sparrows feeding their young with insects and caterpillars. On May 20th, 1893, I saw a cock sparrow with insects in its bill flying into its nest in a hole in the Old Abbey wall near the Burgh School; and on going into the park I saw a lot of sparrows catching flies, hovering about 3 feet above the grass and alighting until they had several insects, then off to their young. I think sparrows can count, for I have watched a cock sparrow bringing the exact number of living caterpillars—so as to give one to each of his brood, which put up their heads, while he stood on the outside of the nest until each got one, then he went for the same number again. On June 8th, 1887, I saw two broods on a rowan tree near Kinburn Place—one of the broods had three cocks and three hens. The old cock fed them with small, bright, green caterpillars, which were abundant—what struck me was the abundance of the caterpillars—and that the young cocks had the same markings as the old cock, which seems to be the most assiduous to the young. So here is an instance of young birds having the same distinctive markings as the old ones before the first moulting. I was pleased to see this proof of the sparrow keeping down crawling pests as compensation for the rifled ears of grain. One day I saw several sparrows busy amongst the buds of one of my pear trees. I watched closely, and saw they were eating the small green caterpillars, which that year stripped the leaves of fruit trees, as if blasted, and I wished there had been more sparrows or fewer caterpillars. This pert little follower of man takes or steals whatever it can—like man stealing from his own kith and kin—for "on November 10th, 1888, when walking past the old Castle, I saw a cock sparrow with a large bit of bread in its bill alight on the dyke, but as it saw me coming, dropped it. Another cock having eyed and envied the tempting prize, quick as lightning, flew down, picked it up before my eyes, and disappeared over the garden wall opposite, apparently, like man, having no qualm of conscience of robbing his kinsman. On June 3rd, 1880, I saw a sparrow catch a large moth, too big to swallow, so, like the shark with a negro, it broke off its wings, then bolted the body, proving that sparrows prey on insects, as larger birds do upon them—the strong preying on the weak, even in human society. On July 18th, 1880, when standing at the old Town Kirk, I heard a prolonged *chirr* from one of the trees within the railing, and saw a jackdaw with a sparrow clutched by one foot, and dabbing its head with its beak till the *chirr* was hushed by death. I went closer; the daw flew off, bearing its victim in its claws—the same as I have seen a hawk do. When at Leuchars one day I went to see the big trout which had lived in a deep well for years—I saw a sparrow floating head downwards. On hauling it up I pulled the trout half out of the water with it. The sparrow had been drinking when the trout seized it and held on. So here was the biter of the moth not only bit but drowned, reminding me of Tennyson, who says—

"The mayfly is torn by the swallow,
The sparrow is speared by the shrike,
And the whole little woods where I sit
Is a world of plunder and prey."

The sparrow is a brave little bird; none of his size will beat him. On 6th April 1888 I saw a mavis building in a garden—like France in Siam; a sparrow eyed the materials, and when the mavis was away for more took them to build her own nest. This went on till a struggle took place for mastery; the sparrow won. The mavis gave in, and let impudence or pertinacity plunder at will. On June 26th, on coming round by the harbour, near the gas tank, I saw a young sparrow fall from the old Abbey Wall. A cat passed at the time, but did not observe the young bird. The old cock, however, flew down and dashed at the cat's head, screaming at such a rate that the big cat was terrified, crouched, held back its ears, and slunk away like a beaten hound. I noted this at the time as a proof of the sparrow's courage. I flung the young one over the wall for safety. The following account of a fight between a cock sparrow and a mouse will also show the pugnacity of our plucky little friend:—

"A sparrow, daily in the habit of picking up crumbs thrown out from a room of a sporting resort in London, was interrupted by a hungry mouse, which attacked the sparrow, and seizing the largest bit of bread was running off with it, when the sparrow at once after the mouse, and attacked it so fiercely with its bill that the mouse bolted, and made for a hole in the wall to escape from the fury of the enraged bird, but the hole being too small, the poor mouse stuck fast for a short time, when the sparrow punished it severely. In self-defence the mouse returned to the charge, and was again so milled that he tried to escape by scrambling up the wall, but falling down through weakness the relentless sparrow flew at him again, and had the best of the fight. The mouse, equally plucky, and determined to have the bread, made a desperate effort to carry it off, but the vicious cock-sparrow pecked and struck him so fast and furiously that the mouse left the court with the speed of a race-horse, and only escaped by tumbling down an area, the sparrow pursuing until he lost sight of him, cocking his little ogles down the area after him, and strutting with all the pride of a bantam or game cock, as if chuckling to himself—'I've given it to you, my mousey, for your impudence,' then returned and finished the crumbs, amidst the laughter of the surrounding spectators."

Allusion is made here to a race-horse, but a sparrow can hop nearly thrice his own length. Can a race-horse do that? But he does not always beat the mouse, for another interesting combat was seen between them in Palace Yard, Westminster. A sparrow was picking up the corn fallen from the horses' nose-bags. A mouse appeared, and disputed his right, when another desperate fight ensued, which lasted several minutes, till the sparrow beat a retreat, evidently injured in the tussle, as he could not fly for some time. It was curious to see the sparrow dodging between the cab wheels and the horses' legs, and the mouse after him. At last he flew up, and the cabmen unfairly finished the fight by killing the mouse with a whip. But the sparrow does not always get sympathisers like these cabmen, for on July 28th, 1885, as I stood in my garden, I saw an old cock sparrow fall down and flutter helplessly on the ground; it was seized by a cat which had been pursuing it. I ran after the cat and got the poor bird, but dead, with its legs and tail so firmly tied together with a bit rosetty twine it could never have broken, and although its wings were purposely free it could neither stand nor fly far—the essence of studied cruelty, to slowly starve or be helplessly killed, as it was. I am sure no bird or beast of prey would have acted so heartlessly as the human hands which did it; and if it is true that "not a sparrow falls without the knowledge of God," or, rather, that "there is a special providence in the fall of a sparrow," an act like that should make us blush for humanity, and make churchmen think there are other sins than those in the Decalogue.

I saw it flutter, but it could not stand,
And ere I caught it with my eager hand,
A prowling cat, with cruel, snake-like eyes,
Sprang in before me and her panting prize.

I ran so quickly where the grey cat led,
I found the little bird, alas! but dead;
Tied with the knot of studied cruelty,
And far more cruel, for the wings being free.

But curses on the heartless human hound
Who ties and forces sparrows to the ground!
May he be tied down with a priestly spell;
His conscience be a canker—mind a hell!

As a rule the sexes keep separate during winter. I have noted half a dozen cocks alighting on the street feeding. Sometimes a hen would alight for a few seconds, then abruptly fly off by herself; but they make up for this in spring and summer by having several broods in the year. Like many birds, they carry away the droppings of the young. I have watched them fly into their nest with food, then fly out with the droppings, thus using their bills for very different purposes. Sparrows both pulverise and bathe—that is, clean their feathers with dust as well as water. On July 29th, 1893, at noon, on my way to Abbey Park, I saw six amongst the dust, like hens, fluttering and rubbing the dust in to their feathers; on arriving at the Kinness Burn I counted thirty-five bathing and splashing in the burn. White of Selborne justly says—

> "Might not Mahomet and his followers take one method of purification from these pulveratrices? Because if a strict Mussulman is journeying in a sandy desert where no water is to be found, at stated hours he strips off his clothes and most scrupulously rubs his body over with sand or dust."

No doubt, like the sparrows, cleansing their feathers, and ridding themselves of parasites at the same time. He is an able fellow the sparrow; once in the world, like weeds and vice, will defy man or virtue to put them out—in spite of sparrow-hail and sixpence per dozen heads paid by farmers for trying to do so. I knew of a common duck which daily killed from four to six sparrows. It seized them with its bill, and shook them as a dog a rat, then threw them over its head. Yet it did not get sixpence per dozen.

Longfellow, the American poet, says—

"The sparrows chirped, as if they still were proud
Their race in Holy Writ should mentioned be."

John Watson in his book on "Sylvan Folk," says—

> "Autocrat of the tiles, and lord of the thatch, the sparrow, in his long intercourse with man, has developed the largest brain in birddom. For reckless audacity and presumptive impudence the British sparrow has only one compeer—the British boy. Thoroughly cosmopolitan, the sparrow is a democrat among birds. He follows man and his attendant weeds to the uttermost parts of the earth, and at any portion of the habitable globe, within ten

minutes of the unfurling of the British flag he perches authoritatively on the flagstaff. For hard-headed shrewdness, practically illustrated and successful, commend me to the sparrow. His keen perception into men and things—his scientific diagnosis of the *genus homo*—are among his ruling traits. Multiplying inordinately, the sparrow is as hardy as prolific. Essentially a creature of circumstances, he is at once ubiquitous and pertinacious, playing, as some say, a questionable part in the economy of nature, he plays a very certain part in the economy of our spouts. When rearing his brood he is actively insectivorous, and confers *incalculable benefit upon the agriculturalist;* but as harvest wanes he becomes recklessly graminivorous, and anon, by a sudden transition, as omnivorous as mankind itself. With digestive organs to be envied, he gulps down pieces of food a twentieth part of his own weight, and deems white lead a luxury. A periodical shot is but the means of transferring it from an empty stook in one part of the field to a full one in another. The moral of 'Damn that boy, he's asleep again,' has long been a pointless joke with sparrows; and his rattle only conveys an unpleasant association of the coming of the reaper. With an ever active brain, and *surviving as the fittest*, no cunning engine has ever been devised greatly destructive to sparrows, and the various machinations, as handed down by inherited instinct, are probably better known to the orthodox sparrow than to man himself. The pitiable personation of Hodge as a scarecrow is recognised by the sparrow as affording a happy hunting-ground for insects, and having served this end, is ripped up and disembowelled, its internal economy torn out to make room for a brood of young sparrows, thereby adding insult to injury in the basest fashion. The sparrow is, in short—to paraphrase Bacon—'a wise thing for itself, but a shrewd thing for everybody else.' Bold, active, and vivacious, its distribution is as wide as that of the Briton. Patronising art, science, and law, the sparrow broods and breeds in the temples dedicated to their shrines, and in our European capital has unwittingly tried to destroy the balance of justice by constructing her nest in one of the pans held by the blind emblem of that inestimable virtue. In other instances the sparrow has shut the sight of an Emperor, built her nest in the outstretched palm of a great warrior, and, radical as the bird is, chirrups beneath and occupies the thatch of the lowliest peasant husbandman."

In America an instructive paper has been issued by the United States Department of Agriculture, which is interesting to us whose naturalization in the New World has carried havoc in its train. Great things were expected from the British sparrow, for, owing to their love of fowling, scarcely a small bird was to be seen near any large American town. In an evil hour it was resolved by the municipal authorities of the Quaker City to import a thousand sparrows to adjust the balance of nature, which the general American "granger" is not likely to forget, for the British sparrow is now looked upon with as kindly feelings as the Australians do on the rabbit, or the Tasmanian on the horticulturist who introduced the sweet briar, or the Antipodeans generally on the Scot who first nurtured his patriotism on the daisy and thistle.

"For twenty-five years the sparrow has been steadily occupying fresh territory, like other bipeds, moving west, until it spread over 895,000 square miles in the United States, and 158,000 in Canada. Any climate suits it.

The frosts of a Canadian winter or the suns of a Florida summer are all the same to the sparrow. Not particular on its native soil, it is quite omnivorous abroad. In spring it devours buds, blossoms, and foliage (?)[*] in summer grain, cherries, currants, and strawberries form its staple diet; in autumn it takes tithes of grain, pears, peaches, and grapes. Nothing comes amiss except insects. These it takes in homœopathic doses, when nothing more is at hand (?) Out of 522 shot for the purpose, whose stomachs were examined, noxious insects were found in only 47, beneficial insects in 50, and species of no importance in 31. When the birds were shot in the vicinity of Washington the shade trees were suffering from insect depredation. The verdict of the Washington experts is against the sparrow, only a few having a good word for the enemy. War, therefore, is waged against it—by trap, and net, and poison, egg-breaking, and nest-burning, and by the repeal of the laws passed for its protection. The edict has gone forth to kill, and spare not. (As the children of Israel did to the Midianites.) Massachusetts has excluded it from protection given to other birds. The Michigan and Ohio Legislatures have passed Acts which offer bounties for its destruction. New York declares it a misdemeanour to give food and shelter to the little outlaw."

But America is a large continent, so that, as in Australia, the sparrow, like the Briton, may continue to enjoy free warren, for there is no creature so perfect that has not faults. In his "Rape of Lucrece," Shakespeare justly asks—

"Why should the worm intrude the maiden bud?
Or hateful cuckoos hatch in sparrows' nests?
Or toads infect fair founts with venom mud?
Or tyrant folly lodge in gentle breasts?
Or Kings be breakers of their own behests?
But no perfection is so absolute
That some impurity doth not pollute."

So I will finish with this poor lesson from a sparrow—

To-day, upon my house-top sat
A chattering cock sparrow;
And such a coaxing wife he had
For his beloved marrow.
They busy chatted; long they sat;
Their note had nought of sorrow;
For who could think they crazed their pates
With aught about to-morrow?

Beneath them walked the lords of earth—
And they might deem the arrow
Of their contempt—for man had just
The mien of that cock sparrow.
What minded he for lordly man?
For black or red coat pretty?
Though Newton's phiz had passed him by,
He'd altered not his ditty.

Man thinks that wisdom dwells with him—
Conceited thought and narrow—
He's far excelled in real bliss
By that same pert cock sparrow.

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[*] I, too, was deceived, for on looking closer, I found it was the birds eating the caterpillars that were destroying the foliage.

For man must oft his errors mourn,
His soul more constant harrow
In dreaming of a future bliss
That's present with the sparrow.

I hushed them off; away they flew
Across my garden's border,
And 'lighted on a neighbouring tree,
With hundreds of their order.
When such a chattering quickly rose—
What could I from it borrow?
They chirped to see man's petty spite—
The friends of that cock sparrow.

But doubtful friends 'tis vain to please—
More vain their idle gabble;
They fret the mind the more we heed,
And cause the more of trouble.
Then let us walk with humble mind—
Each motive sift most thorough,
And guard ourselves from prying friends
Who chatter like the sparrow.

Their own poet Longfellow, in his "Birds of Killingworth," says :—

" It was the season, when through all the land
The merle and mavis build, and building sing;
When on the boughs the purple buds expand
The banners of the vanguard Spring.
The robin and the blue-bird, piping loud,
Filled all the blossoming orchards with their glee;
The sparrows chirped as if they still were proud
Their race in Holy Writ should mentioned be;
And hungry crows assembled in a crowd,
Clamoured their piteous prayer incessantly.

Thus came the jocund Spring in Killingworth,
In fabulous days, some hundred years ago:
And thrifty farmers, as they tilled the earth,
Heard with alarm the cawing of the crow,
That mingled with the universal mirth,
Cassandra-like, prognosticating woe;
They shook their heads, and doomed with dreadful words
To swift destruction the whole race of birds.

What! slay them all! and wherefore? for the gain
Of a scant handful more or less of wheat,
Or rye, or barley, or some other grain,
Scratched up at random by industrious feet
Searching for worm or weevil after rain!
Or a few cherries that are not so sweet
As are the songs these uninvited guests
Sing at their feasts with comfortable breasts.

Think of your woods and orchards without birds!
Of empty nests that cling to boughs and beams,
As in an idiot's brain remembered words
Hang empty 'mid the cobwebs of his dreams!

Will bleat of flocks or bellowing of herds
Make up for the lost music, when your teams
Drag home the stingy harvest, and no more
The feathered gleaners follow to your door?

What! would you rather see the incessant stir
Of insects in the windrows of the hay,
And hear the locust and the grasshopper
Their melancholy hurdy-gurdies play?
Is this more pleasant to you than the whirr
Of meadow-lark and its sweet roundelay?
Or twitter of little fieldfares, as you take
Your nooning in the shade of bush and brake?

You call them theives and pillagers; but know
They are the wingèd wardens of your farms,
Who from the corn-fields drive the insidious foe,
And from your harvests keep a hundred harms;
Even the blackest of them all, the crow,
Renders good service as your man-at-arms,
Crushing the beetle in his coat of mail,
And crying havoc on the slug and snail.

But still the dreadful massacre began—
O'er fields and orchards and o'er woodland crests
The ceaseless fusilade of terror ran:
Dead fell the birds, with blood stains on their breasts,
Or wounded, crept away from sight of man,
While the young died of famine in their nests;
A slaughter to be told in groans, not words,
The very St Bartholomew of Birds!

Devoured by worms, like Herod, was the town
Because, like Herod, it had ruthlessly
Slaughtered the Innocents. From the trees spun down
The canker-worms upon the passers-by,
Upon each woman's bonnet, shawl, and gown,
Who shook them off with just a little cry;
They were the terror of each favourite walk,
The endless theme of all the village talk.

The farmers grew impatient, but a few
Confessed their error, and would not complain.
That year in Killingworth the autumn came
Without the light of his majestic look.
A few lost leaves blushed crimson with their shame,
And drowned themselves despairing in the brook,
While the wild wind went moaning everywhere,
Lamenting the dead children of the air!"

The result was—the same authorities which ordered the death of the birds had to order other birds back to replace them.

The Tree Sparrow.

(Passer Montanus.) Ray. *(Fringilla Montana.) Linn.*

> "This ungenitur'd agent will unpeople the province with continency;
> Sparrows must not build in his house-eaves because they are lecherous."
>
> —*Measure for Measure.*

This bird is less and handsomer than the last; is as rare in Scotland as the other is common. As its name implies, it breeds in the holes of trees, so I would like my readers to be on the lookout for it, that more may be known of the cousin of our house sparrow than I can tell, or can be gathered from the somewhat illogical account given by Dr Macgillivray, who says—

> "I am not aware that it has ever been met with in Scotland. The only accounts given by persons who have observed them are those of Montagu and Mr Selby, who merely say it never frequents villages or towns, but is met with about old trees, in the holes of which it builds its nest, of the same materials as the house sparrow, chiefly hay and feathers. Eggs, four or five, similar to those of that bird, but smaller; that it is active and lively; feeds on seeds and grain, together with insects and buds; has a note similar to its cousin's, but shriller; and is rarely met with, even where it has long been known as indigenous. This is a poor account of so handsome a bird, but I can find no better, for on consulting descriptive books I find only the same sing-song story repeated after Montagu, who ascertained that the female does not differ materially from the male in plumage."

So here, my young friends, is incentive to keep your eyes open when rambling about old trees in the country, for Mr Hewitson, in his "Eggs of British Birds," says—

> "The tree sparrow is not so rare as has been considered. It breeds abundantly in Yorkshire, Derbyshire, and Northumberland. When at Cullercoats, in Northumberland, Mr Hancock took me to an old wall surrounding the gardens of Whitley Hall, in which a number of the tree and house sparrows were breeding in common, without distinction as to habit, locality, or nest."

He also says—

> "The Rev. W. D. Fox sent me a series of varieties of its eggs, taken from a number of nests taken from the holes of large trees, or those of pollard willows."

So, if it breeds thus abundantly in the north of England, I am certain it also breeds in Scotland; for, when its cousin can over-run the Continent of America, the tree sparrow will not halt at the north of England. They also breed in the thatch of barns, along with house sparrows, and in the old nests of magpies and crows, in which they form their nests with domes. The eggs are freckled over with various shades of brown, and subject to great variety; from light red, like the robin's, to grey, like the wagtail's. It takes its name *Montanus* from Montagu, who first identified it in Britain. It is known by the crown of the head and the nape of the neck being deep chestnut, the space between the bill and eyes, a spot behind the ears, throat, and under part of the neck, back, the sides of the neck, and a collar on the nape, white. The next genus in this sub-family is

Genus FRINGILLA, FINCH.

This genus is restricted to the chaffinch and mountain-finch, the only two in Britain. The goldfinch, siskin, and bullfinch, having generic differences, are separated. The bills of the chaffinch and mountain-finch are not so thick as the sparrow's, but they also feed on grain and insects.

THE CHAFFINCH.

(Fringilla Cœlebs.) *Linn.*

Wee bonny shilfa, brisk and cheery,
E'en in this dell sae weird and eerie;
"*Dink, dink,*" wi' labour never weary;
  While Sol shines bright,
You're in this warl' sae dark and dreary—
  A cheery sight.

This handsome bird is broadcast over the cultivated parts of Britain. An early breeder; its song, though short, is sweet, till louder songsters eclipse it by their general harmony, as

> "The nightingale, if she should sing by day
> When every goose is cackling, would be thought
> No better a musician than the wren."

To me his clear *dink*, *dink*, heard near some lone wood is a song in itself. In winter the males fly in flocks; the females keep by themselves in groups. Linnæus says—"All their hen chaffinches migrate through Holland into Italy before winter," so, as many of our migratory birds fly in sexes, I think our native chaffinches are augmented from the north of Europe in winter. I have heard it sing in February, along with the blackbird, mavis, and lark, and have got their eggs in March, but the usual time is April. The first brood flies in May, the second in July. Its nest is the most compact and closely woven of all our birds' nests, and comparatively the smallest; found on every kind of tree or shrub, or amongst ivy, even on the top of a stake. Cowper wrote a poem a hundred years ago on one found in a block on a "gabert's mast" in May 1793. The hen sat on her eggs, while the vessel sailed from Greenock to Glasgow, the cock following. They prefer old moss-grown apple or pear trees when in gardens. The outside is stuck over with bits of lichens or moss to resemble the place where the compact cup is woven—for it is not built. I have got them only 3 inches in diameter by $2\frac{1}{4}$ deep outside, and only $1\frac{3}{4}$ by $1\frac{3}{8}$ deep inside. On April 10th, 1858, I measured one in a garden here—$3\frac{1}{2}$ by $2\frac{1}{2}$ outside, and $2\frac{1}{4}$ by $1\frac{3}{8}$ deep inside; another on April 27th, 1861, on an old white birch tree at Tentsmuir—$3\frac{1}{4}$ by $2\frac{1}{2}$, and $2\frac{1}{4}$ by $1\frac{3}{8}$ deep inside. But I got one on a branch of a withered spruce, composed of twigs and dry grass, like the branch, and so like a green linnet's that I was surprised to find five chaffinch's eggs, and saw the bird. I shall describe some typical ones I took to pieces. One amongst ivy at the Priory had the outside and first layer composed of lichens and moss sewn and cemented with spiders' webs and hairs—some from ladies' tresses were 17 inches long. The whole framework was interwoven with feathers, thistledown, hair, thread, wool, bits of worsted, paper; and lined inside with feathers, hair, and thistledown. Another I got in a thorn at Kinglassie had a thicker layer of moss, lichens, and down, but less hair—yet surprising the number of human hairs, considering the nearest house was one and a half miles away. There was rabbits' fur in this one, besides hair, wool, thistledown, and feathers—there being plenty of rabbits there, but none at the Priory. Another at Tentsmuir, April 27th, 1861, was composed of moss and lichens, interwoven with wool—the wool through the whole frame, with a few fine roots and twigs—proof of a sheep walk. It was close and compact, the outside stuck over with light-blue lichen—chips (from the birch trees) which adhered closely by their rough edges—the wool, like cement, binding the chips. The inside was lined with rabbits' fur and feathers of owls, wood pigeons, kestrels, but chiefly of cole-tits—their fine downy texture preferred—with some fine grass and hair. But it is needless to particularise birds' nests—for different localities have different materials, although in the main alike. In towns where lichens are wanting, bits of white paper, or, if near a cotton factory, tufts of cotton are used, so matted and woven as not to be taken asunder without breaking the fibres. The eggs, usually five, are $\frac{3}{4}$ by $\frac{1}{2}$$^{1\ 6}$, bluish-grey, tinged with pink, streaked and spotted with purple. In summer it feeds on insects and larvæ; in autumn it eats the female of a large aphis moth which infests larch and other firs—having the virtue of the sparrow without its destructive habits. In winter it lives chiefly on grain and seeds. Few birds show greater change of plumage than the male chaffinch. By April the black on the forehead is jet, the fine grey-blue of the head pure, the throat and breast purer purple, back deeper red, and the rump greener-yellow—all assuming a brighter tint. The belly is white, primary quills and secondary coverts black, tinged with yellow. The tail has the two middle feathers bluish-grey, fringed with yellow, the three on each side black, the two outer with a white spot on the inner web; iris, hazel. The female is plainer. In its "Birds of the Month," I see Cassell's Monthly Magazine has selected the chaffinch for March 1889, as it did the sparrow for February.

> "No leaf on the tree, no bloom on the lea,
> The east wind blows free in the morning's prime,
> Yet cheerful and gay this bird chirps his lay,
> Hearts make their own May and its pairing time."

Most apt, for, on January 4th, 1890, a nest with three eggs was got at Fettercairn, Forfarshire. I have got them here with five eggs before the fieldfares had left us for Norway to breed. Though I have placed it next the sparrow, no two birds have more different nests—the one clumsy as the other is neat; but as some species of sparrows (not found in Britain) have their nests on the ground like the buntings, the sparrow forms the connecting link between them and the finches. It is 6½ by 11½ in extent of wings. It inclines to man, and is easily tamed. A male flew in and out of a cottage at the Grange for three years, quite at home, and fed off the floor. In April 1891 he brought a wife, they built on a tree, and had three eggs. On the 12th he came into the house and perched on the back of a chair:

next day he died. The woman thinks she gave him too much hempseed. The female broke the eggs and took down every bit of the nest, got another mate and built another nest on a fir tree closer to the house. But she and her young never entered the cottage. The following lines in praise of our little friend will do in want of better :—

Beneath the birks wi' jaunty air,
Sae prood an' pert thou'rt happin' there,
Sweet bird o' joy—wi' plumage rare—
And life o' bliss—
Thy bonny wings frae gowans fair
Steal mony a kiss.

Leal kindness fills thy throbbin' breast,
And love uplifts thy tiny crest;
Thy care o' sic a wondrous nest
Proves, head and heart,
An architect by Nature blest
Thou truly art.

When Boreas thunders through the wuds
Or blatterin' rain descends in floods,
And leaves are torn like tattered duds,
Still firm and fast
Atween the twigs the biggin' hauds
Against the blast.

What peer hast thou the trees amang,
Sae happy owre thy tender young?
And though thy kindly ways unsung
May lang remain,
A life like thine is never flung
Awa' in vain.

At least when not a sparrow fa's
Upon the ground without a cause—
As plain set doon in Bible laws—
Then sure this bird,
Sae gaily clad in Sunday braws,
Deserves a word!

THE MOUNTAIN FINCH.

(Fringilla Montifringilla.) *Linn.*

"Nae laverock sang on hillock green;
Through faded groves Maria sang—
Hersel' in beauty's bloom the while,
And aye the wild wood echoes rang
Farewell the braes o' Ballochmyle."—*Burns.*

This bird is also called the brambling; it is less than the last—6¼ by 10½—but like it in form and habits. It is only a winter migrant, like the snowflake, arriving in autumn and leaving us in spring. It is rare here, but I have seen it in the upland vicinity with chaffinches amongst stubble—so alike as hardly to be distinguished at a short distance. The head, nape of neck, and upper part of the back are black; the feathers margined with yellowish grey; throat, breast, scapulars, and wing-coverts pale brown; greater quills black, with a white spot at the base; the margins of the outer webs pale yellow; sides orange, spotted with black; rump and belly yellowish white; iris, brown. In summer the head, neck, and back become black, without the grey. Like the chaffinch, its plumage varies, brighter in summer. It is a native of the north of Europe, and breeds in the pine forests of the mountainous districts on high spruce and other firs. The nest is of moss and wool, lined with feathers and hair, like the chaffinch's, but not so neat; eggs also similar. I know of no instance of its breeding in Britain wild, but a gentleman in Suffolk had a large aviary surrounded with ivy, and shrubs inside, in which they bred, and had their eggs in June.

The next genus in this arrangement is

Genus, CARDUELIS.

THE GOLDFINCH.

This is a beautiful group, but we have only two species in Britain—the Siskin and the Goldfinch. The rest are widely distributed throughout the world. Their habits are arboreal; food chiefly seeds. Their bills are slender, and drawn to a sharp point to enable them to pick out small seeds.

The Siskin.

(Carduelis Spinus.) Steph. (Fringilla Spinus.) Linn.

> " The bird that charmed his summer day
> Is now the cruel fowler's prey;
> Let witness trusting woman say
> How aft her fate's the same, jo."—*Burns.*

This handsome bird is an occasional winter visitant here. I have seen it along with the lesser redpoll and others in large flocks near stackyards in severe winters. In summer it feeds on the seeds of the alder, birch, and larch trees; also on thistle, dandelion, and other seeds. I have little doubt but it breeds in Fife, as well as in other parts of Scotland, for many instances are recorded of its breeding in East Lothian, Braemar, Ettrick-vale, Killin, Selkirk, Galloway, Ross-shire, and in large woods near Elgin. Mr Selby and Sir William Jardine saw both birds and nests in June near Killin in a wood of old lofty pines, so high they could not reach the nests. Mr Yarrell says two nests were got in furze three feet from the ground. The eggs of both were taken and hatched by canaries. Mr Gardiner, of Dundee, got a nest with young in Camperdown Woods on a spruce fir branch six feet from the ground, built of the same material as a chaffinch's. Mr Hancock got one with four eggs near Inverness, and on May 2nd got other two with young ones —one with five, the other with four and a rotten egg, near Elgin —all three nests being near the extremity of spruce fir branches; the foliage so dense the nests could hardly be seen, like gold-crested wrens. He also got one from Ross-shire only 3 inches diameter outside, and 1¾ by 1¼ deep inside, composed of moss, twigs, and fine fibres, lined with a few hairs, some thistledown, feathers, and wool. This nest was less than the chaffinch's, but the bird is less—only 4¾ by 9 inches, against 6½ and 11½—nearly as small as the lesser redpoll, the smallest of the British passerines. Mr Weir, of Bathgate, knew one on a spruce fir in a hedge near his house with four ripe young ones, which flew when disturbed. The nest was against the trunk, five and a half feet up, and within twelve yards of the Glasgow road—the best concealed he ever saw, else the boys who passed daily in search of nests would have seen it. The young were like the female. They were seen in the locality for three weeks after. So my young friends need not despair of finding siskins in Fife. The eggs, usually five, are pale bluish white, speckled with red, like those of the goldfinch, but less, $\frac{1}{2}^{16}$ by $\frac{3}{8}^{16}$. The crown and throat of this pretty bird are black, back of the head and neck yellowish green, streaked with black; a yellow band above the eyes; part of the back and scapulars yellowish-green, tinged with grey; rump, greenish-yellow; neck, breast margin of quills, and tail, bright yellow. The under parts, yellow; iris, brown. The general colour is greenish-yellow. It breeds with the canary in cages, has a sweet song, but not so loud as the canary's; is much prized as a song bird, and, like the goldfinch, is easily tamed and taught many tricks. The female is similar, but fainter in colour.

THE GOLDFINCH.

(Carduelis Elegans.) *Steph.* *(Fringilla Carduelis.)* *Linn.*

"Frae fields whare Spring her sweets has blawn
Wi' caller verdure o'er the lawn,
The gowdspink comes in new attire,
The brawest 'mang the whistling quoir."—*Fergusson.*

"The sober lav'rock, warbling wild,
Shall to the skies aspire;
The gowdspink, music's gayest child,
Shall sweetly join the quoir."—*Burns.*

This beautiful bird is also called the thistlefinch, goldie, and gowdspink, from its rich and varied plumage, which, along with its song, makes it prized as a cage bird, and invites the cupidity of bird-catchers. Before Burns, Fergusson in his "Ode to the Gowdspink" says:—

"Sure Nature herried mony a tree
For spraings and bonny spats to thee;
Nae mair the rainbow can impart
Sic glowing ferlies o' her art,
Whase pencil wrought its freaks at will
On thee, the sey-piece* o' her skill.
Thy shining garments far outstrip
The cherries upon Hebe's lip,
And fool the tints that Nature chose

---

* Sey-piece—Masterpiece.

> To busk and paint the crimson rose,
> 'Mang men—wae's heart!—we aften find
> The brawest drest want peace o' mind,
> While he that gangs wi' ragged coat
> Is weil contentit wi' his lot.
> When wand, wi' glewy birdlime set,
> To steal far aff your dautit mate,
> Blyth wad ye cheange your cleethin gay
> In lieu o' lavrock's sober grey.
> In vain through woods you sair may ban
> Th' envious treachery o' man,
> That, wi' your gowden glister ta'en,
> Still haunts you on the Simmer's plain,
> And traps you 'mang the sudden fa's
> O' Winter's dreary dreepin' snaws."

In another poem he says of his favourite bird—

> "'Twas e'ening when the speckled gowdspink sang,
> Whan new-fa'n dew in blobs o' crystal hang."

Although I have got its nest here it is not common about St Andrews. On May 25th, 1858, I got one with five eggs on a high plane tree in an orchard near the Kinness Burn, which I shall describe, as I had trouble reaching it. It was 33 feet up, resting on a horizontal branch seven feet out from the trunk. I got a 30-feet ladder, which, being too short, I set against a lower branch, but as the nest was farther out I could not reach it, so had to cut the under side of the higher branch to let it bend down. In drawing it down, four of the eggs fell out and broke, so it was no use leaving the nest with one egg (being early in the season the birds would soon have more), and it gave me an opportunity to describe the nest. It was 4 inches diameter outside, and 2⅝ by 1½ deep inside, composed of moss and fine roots, chiefly boxwood, lined with hair, thistledown, thread, bits of carpet pile, tow, and feathers—some of the thread 19 and some of the hairs 18 inches long. On taking it to pieces I found it all interwoven with hair, feathers, thistle and dandelion down, bits of carpet, threads, and fine grass, with two bunches of rabbit fur interlaced with moss—one black thread 38 inches long. The hair was of all kinds, interwoven to bind it together. Except the outer layer of moss and roots, it is impossible to describe the various kind of hairs, down, thread, &c. It was one of the most laborious made nests I ever inspected. It was larger than a chaffinch's, and not unlike a linnet's; but when on apple or pear trees they are stuck over with lichens—like a chaffinch's, placed generally on a flexible branch—is literally a cradle, the young being rocked by the wind nearly as much as they are afterwards on the tall and flexible stems on which they feed. A finch's nest such as I have described reminds me of the lines of Hurdis—

> "But most of all it wins my admiration
> To view the structure of this little work,
> This bird's nest; mark it well, within, without,
> No tool had he that wrought, no knife to cut,
> No nail to fix, no bodkin to insert,
> No glue to join—his little bill was all,
> And yet how neatly finished. What nice hand,
> With every implement and means of art,
> And twenty years' apprenticeship to boot,
> Could make one such another? Fondly, then,
> We boast of excellence, whose modest skill
> Instructive genius foils."

A small one was built on the top of a high laurel, surrounded by leaves, like one of those diminutive nests of the humming bird brought to this country, encircled by evergreens, but, as a rule, they are not so compact as those of the chaffinch. The eggs are bluish-white, slightly spotted and streaked at the larger end. It breeds with the canary in cages, the young being mules, called canary-goldfinches. They sometimes breed with the greenfinch in a wild state. Of all birds the goldfinch takes readiest to the cage, is as much at home in a dealer's shop as in a drawing-room. If any caged bird is a philosopher, it is the goldie; is the easiest trained to all the tricks of exhibition, such as firing small cannons, carrying tiny pails, &c.; is easily taught to imitate the notes of other birds, and much used as a call bird. Not very common in Scotland; it is plentiful in England. in the gardens, orchards, about villages and farm houses, where, as Fergusson says:—

> "The gowdspink chitters joyous here,
> And courts wi' gleesome sangs his peer;
> The mavis frae the new-bloomed thorn
> Begins his lauds at earliest morn.
> *Ah, liberty! thou bonny dame,*
> *How wildly wanton is thy stream,*
> Round whilk the birdies a' rejoice,
> An' hail you wi' a gratefu' voice."

Of Liberty he also truly sings—

> "The gowdspink, that sae lang has kend
> Thy happy sweets (his wonted friend),
> Her sad confinement ill can brook
> In some dark chamber's dowy nook;
> Tho' Mary's hand his nebb supplies,
> Unkend to hunger's painfu' cries—
> *Ev'n beauty canna cheer the heart,*
> *Frae life, frae liberty apart.*"

His lively habits and docile disposition too often lead to his captivity, but—

> "I love to see the little goldfinch pluck
> The groundsel's feather'd seed, and twit, and twit;
> And then, in bower of apple blossoms perched,
> Trim his gay suit, and pay us with a song;
> I would not hold *him* prisoner for the world."

It is the most gaily attired of all our native birds, and a sweet singer. It takes its name of thistlefinch from feeding on thistle, dandelion, burdock, and knapweed seeds—would there were more of them here to keep those winged weed-pests from flying about. It also feeds on the seeds of alder and birch trees. It is 5 inches long and 9 in extent of wings. The forehead, temples, and throat are crimson; cheeks and lower parts white; back brown, merging into yellow; sides of breast and scapulars deep yellowish brown; lesser wing coverts black; the secondaries rich yellow; half of the outer webs of its quills yellow; the other parts black; the tips pure white. It is impossible to paint with words the various pencillings of this pretty little bird, so I need not try. It is a fanciful dress of buff and brown, ornamented with gold and crimson, well named *elegans.* Female like the male, but fainter and less; young, like the old ones. The iris, brown. But mere beauty of plumage had no attraction for Burns over plainer if better songsters, for, like them, he says—

> "My muse, though hamely in attire,
> May touch the heart."

While he only mentions the "gowdspink" once, he sings twenty times of the plain-dressed lark, twelve of the linnet, ten of the mavis, and half-a-dozen times of the parson-like blackbird, besides many allusions to each. It remains all year with us, is common on the Continent, and found as far south as the Archipelago. It lives fifteen years; is retiring; found here in summer scattered in pairs. In winter I have seen small flocks of about thirty about St Andrews and Cambo, but not often.

The next genus is that of *Linaria*, linnet, which is closely allied, especially by the lesser redpoll *Linaria Minor*, and the siskin *Carduelis Spinus;* have the same habits, and feed chiefly on seeds.

THE BROWN LINNET.

(Linaria Canabina.) *Sw.* *(Fringilla Canabina.)* *Linn.*

"And the women sang
Between the rougher voices of the men,
Like linnets in the pauses of the wind."—*Tennyson.*

"Can lav'rocks at the dawning day,
Can linties chirming frae the spray,
Or toddlin' burns that smoothly play
O'er gowden beds,
Compare wi' birks o' Invermay?
But now they're dead."—*Fergusson.*

This common little bird perplexed our early ornithologists, who considered it two species—the summer and winter dress of the male being so different. In winter it was the brown or grey lintie; in summer, when it assumed its red forehead and rose-tinted breast, it was the *rose*-lintie, the very bill changing from dusky to bluish-brown—as the cheek of an apple or a peach, or even of a girl, becomes richer by the influence of the sun or love. Be that as it may, the male—like man himself—puts on a "brawer" dress to please his little brown wife. I inspected one shot on June 5th. The rose colour was on each side of the breast; a pale yellowish streak down the centre, with a white crescent patch under the throat; forehead also rich rose-red. I saw one with this plumage in a cage in March 1889; it was caught on February 26th, and began to sing on the 1st of April. In this dress it is called the greater redpoll. Bewick, in his "British Birds," holds that the grey linnet is different from the brown or greater redpoll, as it has been caught in its brilliant plumage, and though kept for years in a cage never again regained its red plumage after the first moult. He may be right, but I knew of a brown linnet which was kept for thirteen years in a cage, and at each moult renewed its rose-tinted plumage. It is called *lintie* from feeding on the seeds of *flax* or *lint*, which used to be much grown in Scotland. Fergusson, in his disgust at the way the "King's birthday was held in Edinburgh," of his muse says—

"She'll rather to the fields resort,
Whare music gars the day seem short,
Whare doggies play, and lambies sport
On gowany braes;
Whare peerless Fancy hauds *her* court,
And tunes her lays."

Also in his "Ode to the Bee," when he exclaims—

> "Like thee, by fancy wing'd, the Muse
> Scuds ear' an' heartsome ower the dews,
> Fu' vogie an' fu' blythe to crap
> The winsome flowers frae Nature's lap,
> Twining her living garlands there
> That lyart time can ne'er impair."

For

> "*The hiney's still as sweet that flows*
> *Frae thristle cauld as kendling rose.*"

And graphically asks the poor butterfly he saw on the street

> "How could you *troke the mavis' note
> For 'penny pies all-piping hot?'
> Can linties' music be compared
> Wi' gruntles frae the city guard ?
> Or can our flow'rs at ten hours' bell
> The gowan or the spink excel?"

The linnet is found broadcast about St Andrews, where there are whins or furze, and plenty of thistles, dandelions, skellocks, and other cruciform weeds, gratuitously working for the farmer without injuring his crops—for, as Tennyson says in "Guinevere"—

> "Next morning while he passed the dim-lit woods,
> Himself beheld three spirits, mad with joy,
> Come dashing down on a tall wayside flower,
> That shook beneath them, as the thistle shakes
> When three grey linnets wrangle for the seeds,"

holding on like grim death in all attitudes, picking out the seeds, and scattering the down in clouds. I have seen them clinging to the stalks for seeds like tits upon trees for insects. It was once plentiful on our links, before the whins were burnt and trodden down for golf. The yellow bloom, lovely patches of heather, and blue bells were the only decorations—along with the sweet music of the linnet—our famous links once had. Alas ! nearly all gone, with the dear retired right of walking over them—unless after a golf ball !—when, with consideration for the rights of others, there was plenty of room for all. It breeds early in May, chiefly in whins or low bushes ; also on thorns and trees. I have got their nests on the links, under low whins, twelve inches high, others twelve feet up on trees. The nest is of roots, dried grass, moss, and wool, lined with hair and feathers ; eggs, five or six—white, spotted with red at the larger end. The first brood fly in May. In winter they assemble in flocks, and seek near the sea; feed on stubble-fields and farm yards for grain or seeds. Easily tamed, their song is varied and sweet—more attractive in the house than on the hillside, where it is drowned by the louder notes of the blackbird, the mavis, and the lark. Wordsworth truly says—

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* Exchange.

> "The linnet and the thrush
> Vied with the waterfall, and made a song
> Which, while I listened, seemed like the wild growth,
> Or like some natural produce of the air
> That could not cease to be."

The only time that linnets assert themselves as songsters is when, late in autumn, a hundred or so collect and hold a concert on some old plane or elm tree when the weather is fine—when their united song beats all I have heard in bird singing, for all our other song birds are *solo* songsters. Even in winter these surprising concerts are sometimes heard. It is an old saying with country people, "It will be a bad day the morn, thae linties are singin' ower weel." Burns couples the lintie's sang with the genius of the Nith—

> "As on the banks o' wandering Nith
> Ae smiling summer morn I strayed,
> And traced its bonnie howes and haughs
> Where linties sang and lambkins play'd:
> I sat me down upon a craig,
> And drank my fill o' fancy's dream,
> When from the eddying deep below
> Uprose the genius of the stream."

In his "Rosebud by my Early Walk," how correctly he sings—

> "*Within the bush, her covert nest*
> A little linnet fondly prest;
> The dew sat chilly on her breast
> Sae early in the morning.
> She soon shall see her tender brood
> Amang the *fresh green leaves bedew'd*
> Awake the early morning."

It is singular although Shakespeare often introduces the lark, he never once mentions the linnet; eagles, falcons, hawks, ravens, crows, buzzards, and kites are more in his dramatic line, while such birds as doves are merely introduced as foils to them. For instance—

> "But I am *pigeon-livered*, and lack gall
> To make oppression bitter; or ere this
> I should have fatted all the *region kites*
> With this slave's offal"—

meaning the King of Denmark.

Again—

> "*The crow doth sing as sweetly as the lark* when neither are attended."

But yet how beautifully he introduces the lark in "Cymbeline"—

> "Hark! hark! the lark at heaven's gate sings,
> And Phœbus 'gins arise,
> His steeds to water at those springs
> On chalic'd flower that lies;
> And winking Mary-buds begin
> To ope their golden eyes;
> With everything that pretty bin;
> My lady sweet, arise,
> Arise, arise."

Which he iterates in one of his sonnets—

> "Like to the lark at break of day arising
> (From sullen earth) sings at heaven's gate!"

And in "Venus and Adonis" how finely he paints its early rising—

> "Lo! here the gentle lark weary of rest,
> From his 'moist cabinet' mounts up on high,
> And wakes the morning, from whose silver breast
> The sun ariseth in his majesty;
> Who doth the world so gloriously behold,
> That cedar-tops and hills seem burnished gold."

In many of his plays the same early stirring is noted—

> *Troilus:* "O Cressida! but that the busy day,
> *Wak'd by the lark*, hath rous'd the ribald crows,
> And dreaming night will hide our joys no longer,
> I would not from thee."
>
> *Cressida:* "Night hath been too brief."
>
> *Troilus:* "Beshrew the witch! with venomous wights she stays,
> As tediously as hell; but flies the grasp of love
> *With wings more momentary—swift than thought.*"

And when Richard III. wants to be early stirred, all he says is—

> "Stir with the lark to-morrow, gentle Norfolk."

Sometimes he writes so deeply and so quaintly we have to think out what he means—for instance, speaking of the handsome and inviting but wanton Cressida, he makes Pandarus say to Troilus —"She's making her ready, she'll come straight; you must be witty now. She does so blush, and fetches her wind so short, as if she were frayed with a sprite. I'll fetch her. *It is the prettiest villain:—she fetches her breath as short as a new-ta'en sparrow.*"

The linnet lives twenty-five, the lark thirty years. I knew of one that lived twenty years in a cage, and only died lately. The general colour is grey, streaked with brown; back, breast, and wing coverts reddish-brown; under parts yellowish-white; female similar, but fainter. In summer the forehead and breast assume a bright carmine—brighter as the bird grows older, but often disappears after moulting in the cage; iris and legs brown. It is 5¾ inches long by 9¾ in extent of wings.

The Mountain Linnet.

(*Linaria Montana.*) *Ray.* (*Fringilla Flavirostris.*) *Linn.*

"The rose upon the brier, by the waters running clear,
May have charms *for the linnet or the bee;*
Their little loves are blest, and their little hearts at rest,
But my true love is parted from me."—Burns.

This bird is called the twite, from crying *twite, twite,* especially in winter, and known from the last by this note when together (so, *lint-white* or *lint-twite*). Poets often mention the lint-white. Burns says—

"The lintwhite in the hazel braes,
Delighted rival ithers lays."

And—

"The lintwhite in his bower
Chants o'er the breathing flower."

"But hawks will rob the tender joys
That bless the little lintwhite's nest;
And frost will blight the fairest flowers,
And love will break the soundest rest."

It is about the same size, and plentiful in upland districts, where it breeds, also in the Orkneys and Shetland; abundant in Norway and Sweden, and found within the Arctic circle. It is rare about St Andrews except in winter. The nest is similar to the last—heath, roots, and dry grass, lined with wool, fibres, hair, and feathers. Eggs also similar but paler and less, as the bird is less—5¼ by 8⅞. As it is chiefly confined to the upland districts, its nest is generally amongst long heath or furze, sometimes on the bare mountain, sometimes amongst corn—but there is no hard and fast line with our flighty favourites. I have got them among whins and furze on Kinkell braes in May.

On May 15th, 1884, I got one with five eggs near Kittock's Den. They come here in winter in flocks, along with the brown linnet and lesser redpoll. In 1887 many were caught amongst the snow with noosed hairs and under riddles. Some had yellow foreheads. Three were kept caged all winter along with some lesser redpolls, but being wild and untameable, they were set free in spring to seek haunts more congenial to their nature, while the more docile redpolls were kept. And as it has not such a sweet song as the last, my young friends need not trouble catching it in winter, nor looking for its nest in summer on the links. It is known by its less size, yellow bill, black feet, crown and back of the head margined with yellow or pale reddish-brown, and the rump fine purplish-red, which in the male is rose-red in summer, and the bill becomes lighter. They have two yellowish bands across the wings; female similar but lighter, without the red on the rump. They mingle freely with the others in winter, and also feed on seeds.

THE LESSER REDPOLL.

(*Linaria Minor.*) *Ray.* (*Fringilla Linaria.*) *Linn.*

> "Oh, sweet are Coila's haughs and woods,
> When lintwhites chant amang the buds."—*Burns.*

This is not only our smallest linnet, but one of our smallest native birds, only 4¾ long by 8¾ in extent of wings, against 3¾ by 6½ in gold-crested wren, and 4¼ by 6½ in the Jenny wren. Like the last, it frequents mountainous districts and glens where there is underwood, and only comes here during severe winters in flocks along with other linnets. It also feeds on seeds, preferring plantations of birch and alder trees. When feeding on the catkins of its favourite tree, the alder, it hangs back downwards like the tits, and is often so engrossed as to be caught with a long stick smeared with bird-lime, or a hairy noose. Selby has caught them with bird-lime when thus engaged. But Nature sometimes makes her own bird-lime in the shape of chestnut-tree-buds, on which gold crests and lesser redpolls are caught. An eye-witness says, April 27th, 1889—

"I saw a very small bird fluttering on a chestnut bud trying to release itself from an invisible tie. At first I thought the bird's nails had become entangled in the bud, but on closer inspection I found that the resinous bud was acting as bird-lime. To prove this I ascended the tree, and with my stick broke off the part of the branch on which the bird was, and found it firmly fixed by Nature's bird-lime. I released it, but so exhausted it could not fly. On opening one of its wings I found the feathers so smeared that flight was impossible. I rubbed the wing with earth until cleared of the adhesive matter, then released the bird, which flew away. Had I not done so it would have died from starvation."

Besides seeds it feeds on the buds of trees, and sometimes injures young plantations. Its nest is small and finely made (like the chaffinch's), on a low thorn or hazel bush, on the outskirts of mountain woods, sometimes on alders by the side of a stream, or amongst young spruce or larch firs; but it has been got on a branch 60 feet up. It is composed of fine roots, moss, and dry grass, with hair inside, profusely lined with willow catkin down—finer than the finest cotton; but sometimes lined with hair and feathers. Eggs five, pale green, spotted with orange. It is later than the others. Selby says—"From the catkin down being a constant material of the nest the young are seldom able to fly before the end of June." In summer the forehead, cheeks, and throat of the male are black; crown, crimson (hence its name); back of the head, neck, fore part of the back and scapulars, dark brown; feathers edged with yellow-brown; lower part of the back, part of the neck, breast, and sides, carmine; middle of the breast, belly, and under the tail coverts white, tinged with rose-red; iris, brown. Its cry is sharper than the brown linnet's or twite's; can be distinguished when flying together. Flight very buoyant, with the undulating feature of the genera. It is kept in cages—not so much for its song, but for its gentle nature. When feeding, like the tits, it clings to the thistles and twigs in all positions. In the winter of 1887-1888 twenty were caught under riddles and in gins about stackyards near the city, two and three at a time, and were so tame as to continue pecking up the seeds under the wire riddles. When put in the cage fed at once, and hopped about as if to the manner born. I saw them and admired their sprightly habits. At the end of June they were as lively as ever, running up and down the wires, hanging back down on the top wires as if on willow twigs, never at rest, seeming to prefer the wires to the spars, as if their long hooked claws were made for doing so. In confinement it breeds with the canary, siskin, and goldfinch. After moulting, the head, breast, and rump of these caged birds became yellowish instead of red; sometimes when the sun shone on them the head assumed a pinkish hue, like the metallic gloss of the pigeon's neck. In the same flocks, others with similar markings but larger were caught beneath the same riddles, which, I think, were a distinct species, as I carefully inspected them—the one the greater, the other the lesser redpoll—both smaller than the common brown linnet. Bewick in his "British Birds" believed in two distinct species. He says—"The greater redpoll loses the red breast in autumn, and regains it in spring. In this it differs from the grey linnet, whose plumage remains the same at all seasons." On this Selby says—

> "It can be no other than the common or brown linnet of a particular age, although he has attached to it the Linnæan synonyms of the lesser redpoll. If Mr Bewick's observations were made upon caged birds, I am not surprised, for I have repeatedly verified the fact of the brown linnet never acquiring those brilliant tints in confinement which distinguish it at a certain time of the year when at liberty. For a linnet was shot in summer when in its most perfect nuptial tint; and, being only winged, was put in a cage, where it soon became familiarized, and still is. It moulted, and acquired the winter dress of the common brown linnet, which it has retained ever since, without dispiaying any of the brilliant red that adorned it in the wild state."

This may be true, but I knew an instance of it renewing its rose-tinted summer dress for several years in a cage; but change of food may rule the change in colour, as birds have a greater choice of seeds in a wild state than they ever can have in a cage. It is quite possible the question may not yet be definitely settled, as Mr Selby, in a note, admits that "a large variety of the lesser redpoll is noticed by Temminck as sometimes met with in this country, nearly equal in size to the common linnet, but the markings and colour are those of the lesser redpoll, so am inclined to think they are not a distinct species, but only *extra-sized* specimens of the female *Linaria Minor*." But it is unlikely the females would be so much larger than the males. Macgillivray says—"Some birds of a larger size than the common redpoll having been observed in Britain of late years have been variously considered as a larger race of the last species, or a *distinct species*, to which the name of mealy linnet, *Linaria Canescens*, has been given by Mr Gould, and belongs to the *Fringilla Borealis* of Temminck." So I may be justified in thinking those "extra-sized specimens of the female redpoll" caught here along with the lesser redpoll were a distinct species, possibly the mealy redpoll, *Linaria Canescens* of Gould. When caught in December 1887 they were along with lesser redpolls, twites, and common brown linnets. They were larger and lighter in colour than the lesser redpolls, and may be another synonym for rose linnet and greater redpoll, if not a distinct species altogether. I inspected them after moulting in 1888, also in 1889. The head, breast, and rump had changed to yellowish-brown, with a greenish tinge. Sometimes the glossy feathers on the head assumed a pinkish hue in certain lights. They had also yellowish bars across the wings, and part of the throat still black. They sometimes sang a low sweet warble, but not great singers, their chief attraction being their amusing activity in climbing up and down their cage. It was amusing to see them change foot-over-foot like a sailor working hand-over-hand up a rope. They also feed on seeds, and only pay us a visit when driven from their haunts by frost and snow, as Burns says Alexander Cunningham was driven from love by his jilt of a sweetheart—

> "The little floweret's peaceful lot
>   In yonder cliff that grows,
> Which, save the linnet's flight I wot,
>   Nae ruder visit knows
> Was mine ; till love has o'er me past
>   And blighted a' my bloom,
> And now beneath the withering blast
>   My youth and joy consume."

The next *genus* is that of Coccothraustes, or Nut-Breaker. Generic features :—Bill very thick, strong, conical, and bulging at the base, quick tapering to the point ; culmen rounded ; lower mandible nearly as thick as the upper ; wings long and pointed ; tail short, forked. Tarsi short, claws sharp and curved. We have only two British species—the common grosbeak or hawfinch and the green grosbeak, better known as the green linnet. But the genus has an extensive range over Europe and America. By the power of their bill the larger species can break the shells of the hardest seeds, upon which they chiefly subsist.

THE GROSBEAK OR HAWFINCH.

(Loxia Coccothraustes.) Linn.

> "The flowers sprang wanton to be prest,
> The birds sang love on every spray,
> Till too, too soon the glowing west
> Proclaim'd *the speed of wingèd day*."—*Burns.*

This bird is rare in Britain, although it sometimes breeds in Epping and Windsor forests. It lives chiefly on haws (hence hawfinch), the stones of which it breaks with ease. Mr Jesse says—"It breeds amongst the hornbeam pollards in Epping Forest, where the bird may be seen all year;" and Mr Doubleday also says—"They are permanent and very abundant in Epping Forest, but extremely shy. Their chief food the seeds of the hornbeam—the prevailing tree in the forest; they also feed on the kernels of haws, plum and cherry stones, laurel berries, &c., and in summer make havoc amongst green peas." They breed in April; nest loosely constructed of twigs, intermixed with lichens, lined with fine roots; eggs, five or six—pale olive green, spotted and streaked with black, some streaked with brown; nest generally in a scrubby thorn, or the heads of hornbeams, often on the branches of large trees, sometimes in hollies. The bird is an inch larger than the greenfinch—7¼ long by 11½. It looks like a dwarf, on which the head and bill of a bird twice its size had been stuck. The bill, pinkish in winter, is blue in summer. It has a low song, like a bullfinch. Though not elegant, it is rather beautiful. Crown of the head, cheeks, rump, and tail-coverts pale chestnut, with a bar of white across each wing; secondary and part of the primary quills black, with a purple tinge, five so singularly cut at the points as to distinguish it from all other birds. It is often called the black-throated grosbeak, from the throat and space between the bill and eyes being black. Breast and belly, pale purplish-red; legs, brown; iris, grey. This is another bird which, in their summer rambles, my young readers might be on the look-out, for if so plentiful in the south of Britain, I see no reason why it should not be found in the north, as the island is not so large. I mind about fifty years ago the missel thrush was considered only a winter visitant here, where now it breeds broadcast in summer, and the lapwing deemed a summer migrant, arriving 1st of April, the easterly gales at this time being called the "chuchat storm." The Latin ornithologists call this bird *Coccothraustes*, *i.e.*, berry-breaker, because with its large horny beak it cracks and breaks the shell of stone fruits for the sake of the seed or kernel.

GREEN GROSBEAK GREENFINCH *alias* GREEN LINNET.

(Loxia Chloris.) Linn.

The merry finch with sapphire coat
From bough to bough is springing;
There's nought but music in his note,
For love inspires his singing.

This bird holds a doubtful position. It is neither a grosbeak nor a linnet; might be classed amongst the sparrows or the finches. Its head and bill are too large for a linnet, and not big enough for a grosbeak. But it does not matter where we place it if placed amongst birds, as an unbroken affinity runs through them all—broken only by geographical distribution and the imperfect faculties of man to define them according to the perfect design of nature, for, birds or beasts, insects or fishes, plants or rocks—not to speak of the stars or planets—are all defined as part and parcel of the one grand science of Nature—quite enough to engross the limited powers of man without introducing the future world of the priest, for, as a quill would be missed from the wing of a bird, so with close study might the want of a single species be missed from the perfect chain of life. This bird is native, common here, and feeds on all sorts of seeds and grain. Some authors say it is a late breeder—"Its nest seldom finished before the end of May or 1st of June"—which is not correct, as I have got their eggs in April and May. One note will suffice:—"May 8th, 1856. Got a kitty wren's nest with eight eggs at Abbey Park; also a whin sparrow's with four eggs, and two green linnets'—one with four, the other with one egg—and a brown linnet's with one egg; and another brown linnet's with four eggs amongst the whins at the links," which shows that the greenfinch breeds about the same time as other small birds—at least here. I have got their nests in hedges, shrubbery, trees, sometimes in whins and ivy; eggs usually five, pale bluish white, speckled at the larger end with brown spots; but I have got them pure white. On May 7th I got one in Abbey Park garden with five white eggs. The nest was of dry grass, moss, and hay, a lot of worsted, carpet oozings, bits of cloth, thread, &c., then a profuse quantity of rabbits' fur; lastly, lined with hair, but no feathers. It was firmly knit together, 5 inches diameter over all, $2\frac{3}{4}$ by $1\frac{5}{8}$ deep inside. I got another on an apple tree with five eggs, nest similar, with some lichens like the tree. I got one in a withered spruce fir branch, the outside made of the twigs broken off the branch to resemble the place; while in evergreens and ivy I have got them composed of green moss to resemble the leaves. On May 27th, 1858, I got one on a horizontal branch of an apple tree seven feet up, which I noted as "the smallest green linnet's nest I had seen, $4\frac{3}{4}$ by 3 deep outside, the cup $2\frac{1}{2}$ by $1\frac{1}{2}$ deep, composed of small roots, some of them $\frac{1}{8}$ of an inch thick, interwoven with moss and dry grass, lined with feathers, some hair, wool, bits of worsted, thread, down, and tow; also with five white spotless eggs." I had doubts of the bird, so lay till she returned. Some authors say—"It has no song worthy of the name of song," but I have heard it sing very sweetly. On May 26th, 1858, when rambling through Kinglassie Wood I lay down and listened to one. A lad with me, along with two of my boys, having a catapult, killed it, against my wish, when thus engaged, so I stuffed and have it still. I may say here that the use of catapults was then a craze in the city, as this note, written at the time, shows—

> "On May 7th, 1864, several boys—two of them mine—were nest-hunting; a lad of fifteen having a catapult, killed every bird he fired at—out of eight shots he killed eight birds—till my son took it from him. The birds were—three green linnets, one brown linnet, two chaffinches, one gold-crested wren, and one sparrow. They were nearly all killed instantaneously, some of them twenty yards off. The same lad knocked a pigeon off the ridge of the big granary at the harbour from the Kirk Hill—eighty yards off. Being only stunned, a man picked it up and let it fly away; but he killed many pigeons; once a cat, struck on the head; also a wild-duck, and a partridge."

I give this note merely to show the precision then arrived at by this silent messenger of death. The following, called the "Song of April," may be overdrawn—

Awake, awake, from slumber rise,
The earth begins to blossom;
Tho' April tears fill Nature's eyes,
There's rapture in her bosom.

The primrose paints the dewy dell
In beauty's everlasting spell;
And wood anemones display
Their rosy lips in bright array,
The wanton bee inviting;
While down the valley softly steals
The soothing balm that kindly heals
The wound of winter's smiting.

The merry finch, with *sapphire coat*,
From bough to bough is springing;
There's nought but music in his throat,
For *love inspires his singing.*
The clarion of the throstle thrills
The dingle with his calls and trills;
While full and deep the welcome strain
Of "cuckoo" fills the plain—
A solo in the chorus;
And will we fail to join the throng
In Nature's universal song,
With heaven smiling o'er us?

Even philosophic Wordsworth thinks the green finch worth noting as a song bird, for he says—

"Thou linnet! in thy green array,
Dost lead the revels of the May,
And this is thy dominion."

Be that as it may, the green linnet does not shine as a songster, though its "green array" does as a dress. Nor is it void of intelligence, as the following letter from "A Fifer" recently in the *Scotsman* shows—

"The letter about an 'ingenious cockatoo' encourages me to give this story of a humble green linnet, which bids for fame, in the Kingdom of Fife. In summer, while playing, some children found two helpless young linnets on the ground, and took them home to their mother, who was rewarded by the survival of the subject of this letter. 'Jacky,' as he is called, was left to the freedom of his own will to roam about the house, and soon showed superior intelligence by flying on to the finger, head, or shoulder—at the call 'Come Jacky,' and awakening the goodwife by gently tapping her head with his bill. When she is at the sewing machine he sits and watches her threading the needle, catching hold of the thread when it enters the needle eye, and pulls it through. Add to this the fact that 'Jacky' goes out for a day or two in the country, and comes back of his own accord. Calling on my friends in Pitlessie, where 'Jacky' is, he came at the call and sat on my finger. I think we would see and learn far more of the happy relationship of man and beast if kindness and liberty took the place of cruelty and confinement."—A FIFER.

A paragraph, under the heading "Interesting to Ornithologists," also from Pitlessie, appeared in the press—

"Early in summer last year the children of Mr William Speed found a young lintie, and brought it up in the house. It was never in a cage, but flew out and in as it pleased. All winter it remained in the house, but in April this year a mate came, and the pair flew about a short time enjoying themselves. The two then left the house for three months. On Friday last the lintie returned with two young ones. It entered the house quite familiarly, and hopped from Mr to Mrs Speed's hand. It visited all the corners of the house. The young ones, however, would not enter, but waited patiently outside until the old one came out with food. On being fed all flew away."

(It did not say whether these were green or brown linnets.) In winter they go in flocks along with other birds, but at dusk separate and roost amongst evergreens or firs by themselves. It is the size of the sparrow, 6¼ by 10¼, but looks bigger, from its larger head and bill. It is a pretty bird—upper parts and breast bright green, softening into yellow; head tinged with grey; edge of wing, with part of the outer webs of the primary quills and base of the tail, bright yellow; bill, pinkish; legs, pale brown; and iris, hazel. Female similar, but not so bright, and less. The next allied *genus* is that of LOXIA (crossbill), in which Linnæus included the grosbeaks, bullfinches, and many hard-billed birds, kept separate by classifiers—the Linnæan genera being generally more extensive than theirs. There are only three species of crossbills found in Europe--two in Britain, but I know of only one seen near St Andrews.

THE COMMON CROSSBILL.

Loxia Curvirostra. (Linn.)

"And that bird is called the crossbill,
Covered all with blood so clear;
In the groves of pine it singeth
Songs, like legends, strange to hear."—*Longfellow.*

Longfellow wrote this poem from the German legend of Julius Moson—the blood-red colour of the bird attributed to its efforts to prize out the nails from the hands on the Cross by its cross-pointed bill, as the robin is said to have got its red breast by picking out the thorns from His brow. Thus are legends manufactured from the birds:—

"On the Cross the dying Saviour
Heavenward lifts His eyelids calm,
Feels, but scarcely feels, a trembling
In his pierced and bleeding palm.

And by all the world forsaken,
  Sees He how with zealous care
At the ruthless nail of iron
  A little bird is striving there :

Stained with blood, and never tiring,
  With its beak it doth not cease,
From the Cross 'twould free the Saviour—
  Its Creator's Son release.

And the Saviour speaks in mildness—
  'Blest be thou of all the good ;
Bear, as token of this moment,
  Marks of blood and holy rood !'

And that bird is called the crossbill,
  Covered all with blood so clear,
In the groves of pine it singeth
  Songs, like legends, strange to hear."

This bird lives in the large pine forests of the north of Europe and America, and only occasionally comes to Britain in large flocks, and may be seen in all the large fir woods in the country, on the seeds of which trees they chiefly feed. The largest flock I remember that visited Fife was in January 1856, when the large fir wood of Stravithie was being cut down (three miles from here). As the men were felling the trees, the birds were clipping the tender tops of the Scotch firs which fell down amongst them. They were so tame that many were killed. This is my last reminiscence of Stravithie Wood, now entirely gone—the railway running through a deep freestone cutting at the west verge of it, where I often rambled in search of birds' nests. The crossbills are early breeders. Selby says, during the summer of 1821 Britain was visited by immense flocks of them, which spread through the country where firs were abundant. They were first seen early in June, mostly females and young birds (the males having the red plumage from the first moult to the end of that year). Many of the females he killed, for their bare breasts showed they had incubated previous to their arrival. They continued till autumn, but kept moving north, as he found them particularly abundant in all the fir tracts of Scotland after they had disappeared south of the Tweed. He says they have repeatedly come since 1821, but never in such numbers, which agrees with my own observations as to their irregular visits, for they never appeared in Fife in such flocks as in 1856 ; but since then they have been found breeding in Scotland and England. So this is another rare bird my young friends may be on the lookout for. If Selby is right, that the young ones accompanied the old females as early as June, it does away with the assumption of having more than one brood in the year, unless they breed in autumn and winter, as some authors say they do; and, as fir cones (on which they feed) are found all year, their breeding need not be retarded like those birds which rely on flies or fruit to feed their young. Mr Hancock says—"These vagrant birds build their nests wherever they happen to be at the breeding season; and Temminck states they have eggs "at all seasons of the year." On April 13th, 1839, two nests were got in the Holt Forest, one with two, the other with four eggs; and one on the 7th with four young ones about a fortnight old, which dates this nest early in March. They were all in the thick tops of Scotch firs of thirteen years' growth. On 9th April two were got near Cirencester on the lower branches of Scotch firs, 10 feet up. One had two young ones which flew when touched, so the eggs must have been laid in February. The nest was made of dry larch twigs; the base a thick mass of bent and stalks of plants felted together with wool; lined inside with horse hair, nearly covering the other materials; the base extended in a loose way four inches round the outside of this nest. The other had three young ones. On May 8th, 1850, Mr Hancock got three nests in pines on the banks of the Findhorn—the young flown; and on March 10th, 1854, Mr Charles St John got one in Ross-shire with four eggs. He also shot the old birds. They were all on Scotch firs, about the middle of the lowest branch, nearly hid by the foliage, about 10 feet up. He saw one at Grantown so high it could not be reached. The nests were about 5 inches diameter, 3 inside, and 2⅝ deep. The outside of dry Scotch fir twigs, loosely put together, then moss and wool, with long vegetable fibres, and lined inside with fine fibre instead of hair. The eggs, four or five, are like the greenfinches—greyish-white, with red spots at the larger end (some dotted over with small spots like those of tits). The bird is less, but stouter than the greenfinch, with a strong cross-pointed bill, admirably adapted to wrench fir cones aside by a lateral expansion when inserted betwixt the scales in search of the seeds which constitute its food. Its head and the muscles attached to the bill being large give the head a disproportioned look. The neck and legs are short but strong, claws long and hooked, laterally grooved and pointed—well fitted to take firm hold of the cones. When caged they climb on the wires like parrots by bill and claws. The bill is nearly as long as the head, and longer than the tarsus, curved at the tip; upper mandible longer than the lower—when closed the lower rises, crossed to a level with the ridge. The upper has a deep central groove, the lower deeply concave, having the edges raised into sharp cutters. Mr Hoy, of Stoke, Suffolk, says large flocks frequented fir woods in his vicinity from November to April so tame that when feeding on trees not more than 15 or 20 feet high, he has stood in the midst of the flock unnoticed, and, when on larch trees, seen them cut the cone from the branch with their beak, hold it in their claws as a hawk does a bird, and extract the seeds with surprising dexterity. Scotch fir cones, being larger, they cling to them with both feet, and have been so busily engaged with the seeds that he has captured great numbers with a horse-hair noose fixed to the end of a fishing rod; others he took with a limed twig fixed in the end of the rod. In windy weather he took several from the same tree without creating suspicion. As spring advanced the male sang a low sweet song on the tops of the trees, but kept in flocks till June. He kept four dozen in a room; they soon became very familiar and amusing pets, living chiefly on canary and hemp seeds along with fir cones. Macgillivray saw several hundreds in autumn on the banks of the Spey feeding on rowan-tree berries. He says—"It was pleasant to see the little creatures flutter among the twigs in constant motion like bees on a cluster of flowers. Their brilliant colours, so much more gaudy than those of our common birds, seemed to convert the rude scenery into that of some far-distant land, where the redbird sports among the magnolia flowers." Sometimes they commit great havoc in orchards by splitting the apples and pears in two for the seeds—like killing the elephant for the tusks. The head, neck, breast, and sides are red, mixed with grey on the hind neck and yellow on the breast; the lower parts, greyish-white; lower tail coverts, greyish-brown, margined with white; back, dusky red; hind parts, reddish-yellow; upper tail coverts, wings, and tail, deep brown; iris, hazel—altogether a fine coloured bird. It is 7¼ long by 11¼ in extent of wings. The tile-like red of the young males becomes ash grey, deeply tinted with yellow, after the first moult. The female is greenish-grey, with the rump deep primrose yellow, the under parts streaked with brown. There is another species called

THE PARROT CROSSBILL.

Loxia Pytiopsittacus. (*Bechst.*) *Loxia Curvirostra.* (*Gmel.*)

But, as I never saw it here, and as it has seldom been seen in Britain, I may merely say that in habits, nesting, food, and colour, it is like the last but larger, and has a stronger bill. It frequents the pine forests of the north of Europe and America, and is found within the Arctic Regions. It has been got in Ross-shire, and may yet be found in Fifeshire. It is 8 inches long by 14 in extent of wings. The next allied *genus* is

Genus PYRRHULA. (*Briss.*) BULLFINCH.

Generic features:—Bill, short and thick, rounded and bulging; point of the upper mandible curved over the lower, and deeply concave within, having two lateral grooves for the under one. The head is large, neck short, and body stout. Like the crossbill, the tarsi are short and slender, but the toes are long, the claws curved, sharp, and grooved, enabling them also to cling to twigs when in search of buds and seeds. We have two species in Britain, but only one resident—the common black-headed bullfinch. The other, the pine bullfinch, is only a rare visitant.

THE PINE BULLFINCH.

Pyrrhula Enucleator. (*Temm.*)

This is the *Loxia Enucleator* of Linnæus and pine grossbeak of modern authors. It is a beautiful bird, but seldom seen in Britain, and only in the north of Scotland, where pine trees abound in a natural state, such as Invercauld, in Aberdeenshire, where some authors say they breed. They are plentiful in Norway and Sweden, in the north of Europe, Asia, and America, and breed within the Arctic Circle. Their food—seeds of pines and berries, as well as tender buds of trees and bushes. I never saw it here, so need not write second-hand. It is larger than the common one—8½ inches long, the other 6. The head, neck, throat, breast, and rump are bright carmine, tinged with vermilion ; back and scapulars, black ; the feathers edged with crimson ; wing coverts tipped with crimson, forming two bars across the wings ; quills and tail feathers, grey, edged with pale crimson ; under parts, greyish-white, also tinged with crimson. In the young males what is crimson in the old ones is pale orange, the bars on the wings white ; the females like the young males.

The Common Bullfinch.

Pyrrhula Vulgaris. (*Temm.*) *Loxia Pyrrhula.* (*Linn.*)

> "The valley rings with joy and mirth,
> Among the hills the echoes play
> A never, never ending song
> To welcome in the May."—*Wordsworth.*

This bird is neither vulgar nor common about St Andrews, though called "vulgaris"—indeed, as our sweetest pleasures are the simplest, many of our most common birds are the handsomest and sweetest singers. It is retiring, does not associate with other birds, but generally seen in pairs, or, when the young are flown, in families of six or seven, which continue during winter till spring and nature sever the connection, and again draw pairs together for the reproduction of families. You seldom see them in summer except in their sylvan haunts amidst the thickest woods and copses, where it breeds. They generally select a thorn or a low tree in the thickest part. The nest is of fine roots and moss, lined with wool and hair, sometimes with fine fibres ; is like a greenfinch's, only built on roots or twigs, but more loose and shallow, like a hawfinch's or crossbill's ; eggs, four or five—bluish-white, spotted with light brown. It lays in May, and breeds in Mountmelville Woods, but is not common anywhere, and seems less so by being secluded, finding its food in woods and neighbouring fields. Its chief food is seeds and buds of trees, such as white thorn, larch, and birch. It sometimes makes havoc amongst fruit trees in gardens, especially plum trees, for which the blue-tit is blamed when searching for larvæ. The buds are not swallowed whole, but first divided by their sharp-cutting bill.

One of my notes says:—"April 3rd, 1878. Having walked from St Andrews to Gilston, by Largoward, on my way home by the Peat Inn, Drumcarrow, and Denhead, I saw a pair of bullfinches, male and female, feeding on the small green leaf-buds of a hawthorn hedge at Mountmelville, 3½ miles from St Andrews. They were not the least alarmed, although I stood within four yards of them. It was a lovely day, but as there had been a heavy snowstorm two days before, the snow lay five inches deep; yet they were fearlessly and cheerfully stealing the first green mantle of spring. Though the snow was deep the sky was clear, and as so many of my little feathered friends were flitting on the hedges—the lark singing overhead and the blackbird whistling in the copse—I was not tired, although I had walked 18 miles, nor ever feel so when alone with teeming Nature. I felt a relief to be away from the selfish insincerity of man; and as I stood in the middle of that snow-paved road, with my old Glengarry bonnet in my hand, watching the bullfinches, I could not help breathing a silent but sincere prayer to the Infinite Father of all—the Source and Soul of life—'*Which*' we call God—thankful I was able to walk so far with a free and buoyant spirit, trusting to be forgiven for all my transgressions, as no doubt these little bullfinches would be for breaking the first green leaf-buds of that April thorn." I have a male stuffed which was shot on a spruce fir at the Lawmill on April 4th, 1856, and a female shot at Stravithie, March 3rd, 1858. I have seen them in nearly all the woods about St Andrews, but sparingly. Its usual note is a plaintive whistle, and, when feeding, a low twitter, like the crossbill. Its song is so low and sweet that casual observers say it has none, but merely imitates the songs of other birds, or whistles various tunes, which it readily does in cages. It sometimes loses its lovely plumage, and becomes nearly black, by feeding too much on hemp seed—as the rose tint of the linnet loses itself from the same cause. It is one of our most beautiful birds. The crown of the head, throat, wings, and tail are glossy black, tinged with violet-purple; nape of the neck and back, bluish grey; cheeks, neck, breast, belly, and sides, light red, between lake and vermilion; rump and under-tail coverts, white—the whole plumage soft and downy; iris, brown. The length is 6 inches, and 9¾ in extent of wings. The female less, similarly marked, but duller, the grey being tinged with brown, the white on the rump less, and the red less bright. The next allied birds are the Starlings.

FAMILY II.—STURNIDÆ. (*Vigors.*)

In addition to the true starlings—the genus *Sturnus* of Linnæus—there are several groups of birds, some confined to Europe, some to America, and other parts of the globe, allied in habits, and preserving the chain of affinities in a broad sense to this family (one of the typical groups of the *Conirostral* tribe), but we have only two species of one of these sub-families—the *Sturnina*—in Britain—I may say in Europe, for the sub-family *Lamprotornina* is restricted to the hot climates of Asia and Africa; while the *Agelaina*, *Icterina*, and *Scaphadurina* belong to America, and are arranged by the earlier systematists in the genus *Oriolus*. Therefore I need not perplex my readers with the affinities and grouping of affinities in the broken chain of our winged friends as we find it in Britain.

THE COMMON OR SPOTTED STARLING.

Sturnus Vulgaris. (*Linn*).

> " I'll have a starling—shall be taught to speak
> Nothing but Mortimer, and give it him
> To keep his anger still in motion."—*First part of Henry IV.*

This bird is broadcast like the east wind in the British Isles, from the Orkneys to Land's End. In autumn they assemble in large flocks, and shift from St Andrews. They make their nests in holes of trees and old ruins—of which we have a fair share. Their simple nest is composed of dry grass and moss; eggs, five or six—plain, bluish-green, 1¼ in. long by ⅞ in. Their chief food is worms and insects; also fruit, grain, and seeds, with small marine crustacea, such as the sea louse (*Oniscus Marinus*), which they get by turning over small stones with their bills. Their flight is not undulating, like the bunting's or linnet's, but straight, like a kingfisher. They walk and run with equal ease, like the larks or wagtails, but do not hop like thrushes or sparrows. I have seen them in groups of twenty or thirty as late as the 20th of April, but they generally begin to breed in the middle of April. On May 1st, 1858, I got a nest with five eggs, slightly sitten, a foot down a hole in an old elm tree, thirty feet up, in Strathtyrum Avenue—the hole only 1¾ in. by 2¼ in. I had to cut it larger to get the eggs. I have got them in holes of trees not five feet from the ground. I saw four nests only three feet from the rails at our station in the joints of the stones, and got one behind the stationmaster's signboard. I got one on an old ash tree twenty feet up at Abbey Park—not in a hole, but in a fork; it was as big as a missel thrush's. But they prefer holes. On cutting up an elm tree at a sawmill in Ardrossan lately a nest with six eggs was found encased in nine inches of wood. The birds had been killed, or the nest deserted, and time had entombed the eggs. A few months before another was found in the same yard. The nest, dry grass and moss; but they begin to lay in the middle of May, when the young rooks begin to fly. On May 16th, 1890, I saw several picking up straw on South Street and fly up to the spout-heads—making nests to rear their young and choke the conductors. I saw young rooks flying the same day at Abbey Park. On May 8th I saw three building in the holes left for ventilators in a gable at Hope Street; but they breed in all places—dovecots, ivy, eaves, cliffs, old water-rats' holes, on shelves of rock, under large stones—in fact everywhere. The young begin to flock as early as the first week in June. In 1893 they roosted nightly in thousands in plane trees at the Priory and near the old Castle.

One of my notes says—"June 27th, at seven P.M., saw hundreds of starlings settle to roost on the trees at the Priory." I got five nests within a few feet of each other amongst the ivy on one of the old abbey wall turrets near the Shore Bridge. The male sings in March (if the weather is fine, sometimes in January). Almost every morning I heard one on the top of a turret on the College Kirk, or on a chimney can, as I went down the Butts Wynd for a walk along the Scaurs. On May 14th, when passing the College Church, I saw one fly out of a hole, then drop something. On going to the spot, I found it was the dropping of its young—thus, like most small birds, keeping its nest clean at the expense of its bill. I saw one fly up and down from a zinc rhone in South Street with mud in its bill, which it deposited in the rhone. I got a long ladder and found a dam of mud across the rhone near its nest to save its eggs. Could reason have done more? The question arises—Do birds with such intelligence remain paired for life, or does each year provide for itself with old as well as young? They return to the same breeding places; why not with the same mates? On

May 14th, 1880, I saw one pop out of the letter-box at Clayton (five miles from here). I went back on the 29th and found that three ripe young ones were taken out the week before. The postman told me that two pairs began to build in the box, one at each end. He thought it was boys that put in the straws. He cleared them out repeatedly, until he saw the birds fly out. He allowed them to build, till an egg was laid in one of the nests. The other pair then took possession of the box. Although the box was opened twice a day, they sat and reared their young until ripe. They never sullied the letters or papers, the droppings being carried out by the old birds. The box was 17 inches high, 16 broad, 14 deep, the hole only 4 inches long by $1\frac{1}{4}{}^{16}$—a small one for a starling to pop into. On May 23rd, 1886, in going through Earlsha' ruins, near Leuchars, I got a nest with raw young ones under the old floor of the upper storey. I went back on June 6th, and on lifting the boards the young flew about the room. I replaced the boards, caught the birds, and left them under the floor. The old ones got access through a small window ; but they breed in strange places. On May 9th, 1888, when the barque "Blytheswood," of Greenock, was loading at Montrose, on unfurling the mainsail a starling's nest, with four eggs, fell into the hold. The birds were often seen on the yard, but it was never dreamt they had taken possession of the ship—as a proof there is no hard and fast line for breeding. On January 7th, 1889, a pair were rearing their young in a hole of a tree. At Christmas, December 25th, 1888, about the same time, when Mr Mackie, oversman at No. 7 Blair Ironstone Pit, Dalry, was going along the air passage he had his light suddenly put out. On putting up his hand to his lamp he caught a starling on his cap. How it got there is not known. It had a sooty appearance, and devoured food greedily, as if it had been there for some time. At No. 3 Craigneuk Pit, Airdrie, one was found at the bottom of the shaft. It was taken up and set free, but the miners were surprised to find the same bird a few hours after again at the bottom of the shaft, which is 900 feet deep. One of the men took possession of it. I give these facts merely to show the vagaries of the starling.

Starlings are much more plentiful about St Andrews than they were 50 years ago. They were then rare. When rambling for nests I never thought of getting their eggs. Now, it is one of the most plentiful birds we have at all times of the year. But they are still more plentiful in Orkney. On June 14th, 1864 Dr Trail and another landed proprietor there told me they were in immense numbers. This gentleman took seven bushels of old starlings out of his pigeon-house at one time. Another time he took 47 dozen, and sent them, along with a lot of pigeons, to his friends, who thanked him for the pigeons and *snipes*. On seeing his friends, he asked how they liked the *snipes*. Very well, they said, only they were a little bitter. He once, along with others, landed on one of the small uninhabited islands, and kindled a fire in an old kelp-burning hut. The starlings fell down amongst the smoke in great numbers, on which they made a hearty meal. It is said where starlings accumulate larks decrease by the starlings preying on their eggs. Wishing to ascertain this, a manufacturer told me that in an old unused loft of his factory there were over 300 starlings' nests, and on the meadows close by 50 larks' nests were counted, and none of the nests or young were taken by the starlings, which searched the meadows constantly for worms. So, convinced of this fallacy, he protected both birds. Neither do they touch the eggs or young of pigeons. They rather fraternise, for I have found them breeding together by the seashore, as the Orkney gentleman proved by his *snipes*.

Starlings skim and hawk for flies like swallows. On October 8th, 1888, I saw many wheeling and curving up and down, now and again alighting on chimneys and ridges in groups, all over the city, from the Square Tower on the east to the Marine Hotel on the west. I saw them from 10 A.M. till 5 at night. The day was close and mild. I have often seen them hawking for flies after the swallows had left. They fly slower, and are more distinctly seen catching the flies. I watched them on the 10th of October and 14th November 1890, at noon both days—clear sunshine. On November 11th, 1888, on my way, by Eden, to see the wreck of the Norwegian barque "Sofia Maria," on Kinshaldy sands, I saw hundreds on the telegraph wires, and large flocks of lapwings along with them on the solum in Eden—the tide ebb, proof that both birds winter here. There were myriads of flies above the seaweed lying on the beach—the day fine after the recent storm. I have seen flocks of starlings, gulls, lapwings, and larks all mingled together on pasture fields near our seashore; and seen dozens on the backs of cattle and sheep, feeding on the parasites. So, shepherds should befriend the starlings. On August 28th, 1893, I saw about one hundred eating my ripe jargonelles on the trees, being expert thieves as well as vermin cleaners. They eat anything in the shape of worm or insect, fruit, grain, or parasite—only they cannot husk seeds. I have seen them flock from the 8th of June to the end of August. I watched them specially on August 1885. About 6 P.M. they came in thousands, flew round the spires of the old Cathedral, and as many as got foothold clustered on the remaining spire of the west gable. Hundreds tried to alight; no room. They wheeled and dived down to their roosting-place amongst the dense foliage of the plane trees in the Priory. Those on the spires flew down, tumbling like stones, and joined them. This went on night after night, till the birds were as plentiful as the leaves. The united chittering at dusk was like a shower of hail pattering on the trees, till the second week in October, when the leaves began to fall off, depriving them of shelter. They then disappeared, but left plenty behind. They do not all migrate like swallows, but merely shift their quarters, as many of our native birds do, in search of food, leaving flocks behind. I think the reason they congregate in such numbers in autumn is, being a social bird, after breeding is over, young and old select a central roosting-spot in the district previous to their scattering over the country, until their masters—March and April—impel them to set up housekeeping in separate holes and create family circles of their own. And thus the eternal chain of life runs on. Where there are no trees—such as the outer Hebrides—they nightly roost in the caves where they were in company bred, while such birds as hawks, like thieves, like to be by themselves. The starling was once split into two species—the young being called "the brown starling, or solitary thrush" (*Turdus solitarius*) before it casts its plain brown garb to assume its white-spotted mantle of purple, blue, and green. The general colour is black, with purple, green, or blue reflections, is about the size of a mavis, with a longer bill and shorter tail. It is 9¼ long by 15½ in extent of wings. The bill of the male is pale yellow; iris, hazel. Its low song is between a chitter and a whistle, is easily tamed, can imitate other birds, and be taught to speak—hence a great cage favourite. A neighbour had one which flew about her house, perched on her head, and asked for "a cup of tea." She got me to listen to her talking starling, but I could not detect anything like its request for her favourite beverage—only a low musical twitter, which, like the elephantine cloud or weasel, of Polonius, might be construed into anything; but they can be taught to speak plain, though not so plain as the parrot; for at a show in Manchester, where talking was the subject of a prize, several had exhibited their prowess. At last the cover was removed from the cage of a grey parrot, which, on seeing the company, exclaimed, "By jove, what a lot of parrots!" and won the first prize. Sir William Temple tells of the Brazilian parrot which Prince Maurice tested in Brazil during his government there. When brought into the room where the Prince was, with several Dutchmen with him, it at once said, "What a company of white men are here!" They asked "what it thought that man was," pointing to the Prince. "Some general or other," it replied. The Prince asked, "Whence came you?" "From Mirannan," it said. "To whom do you belong?" "To a Portuguese." "What do you there?" "I look after the chickens." The Prince laughed, and said, "You look after the chickens?" "Yes; and I know how to do it very well," and then cried, "Chuck, chuck, chuck," as people do when calling on chickens. Sir William states, "He set down the words just as Prince Maurice said them." But starlings can also speak plain. A shoemaker in Ayr taught one to say distinctly, "Come in, sir, and take a seat;" "I see by your face you like the lasses;" "George, I want it immediately." Mr Syme, of Edinburgh, had one which distinctly said, "Good morning, sir—breakfast, breakfast;" and "Breakfast, breakfast—bread and butter for Jack—pretty Jack—pretty Jack."

The next allied genus is called *Pastor* by Temminck.

THE ROSE-COLOURED PASTOR.

Turdus Roseus. (*Linn.*) *Pastor Roseus.* (*Temm.*)

This is a lovely bird, same size as the starling, which it resembles in habits. It is called *pastor* or shepherd, from being sparsely seen amongst a flock of starlings. It is also called rose-coloured cow-bird, from its habit (like the starling) of perching on cows and feeding on the larvæ of their insect enemies; and as it is a native of the warmer parts of Africa and Asia, it is much prized. It is only an O.V. with us in winter. It lives on insects, and nestles in the holes of trees and rocks. Its general colour is pale rose-colour, hence roseate. The underparts and back are a delicate peach-blossom red; wings and tail, brownish-black; head, neck, and breast, black, glossed with violet and green—the male adorned with a long pendant crest; iris, brown. The young, greyish-brown, like young starlings. It was classed in three genera—*Gracula*, *Sturnus*, and *Turdus*—until separated by Temminck into the genus *Pastor*. Macgillivray gives it still another generic name—*Thremmaphilus*—which means *cattle* and *friend*, for it follows cattle and perches on their backs to pick the acari and ticks from their skin. When classed with the thrushes it was *Turdus roseus;* with the starlings, *Sturnus roseus*. No bird is so much identified with the rose as this. It is called *Turdus roseus*, *Sturnus roseus*, *Pastor roseus*, *Merula rosea*—Merle colour de rose, Martin roselin, Roseate cow-bird, Rose-coloured thrush, &c. I suppose it began by Ray and Linnæus classing it amongst the thrushes, and calling it *rosea* and *roseus*.

FAMILY III.—CORVIDÆ. (*Leach.*)

Through our broken chain of British birds I jump from the rose-coloured pastor of Temminck, or rose-coloured thrush of Linnæus, to the true typical pastor, or parson of birds, parson rook—the crow—at whose head, "on a bust of Pallas," as Edgar Poe has it, stands the croaking raven. The first family of this conirostral or thick-billed tribe of birds began with the *Fringillidæ* (including the finches); the second, the *Sturnidæ* (the starlings); but as the crow-blackbirds, genus *Quiscalus*, which forms a link between the starlings and crows, are awanting—besides other five minor groups in Britain—we must be content with the crows, the pies, the choughs, and the jays. Their bill is like a cone, strong and powerful, with sharp cutting edges. The legs and feet also strong, as well adapted for walking as perching—in which respect they are entitled to the name of *Vagatores* or wanderers. And, regarding food, they are as well named *omnivorous*—all-eating—as they feed as readily upon animal as on vegetable food. Like man himself nothing comes amiss to the crows, and notwithstanding their sombre garb are amongst the most perfectly organised of birds. Their digestive organs enable them to get nutriment from a great variety of substances, as their stomach is intermediate between the thin membranous kind peculiar to the carnivorous families, and the thick muscular gizzard which characterise the granivorous—their form of feet also having three toes forward of equal length and one behind, with the help of their strong claws and legs enable them to walk or perch with equal ease, while their pointed and moderately long wings and rounded tail, perfect as a rudder, ensures powerful flight—steady without being heavy, and buoyant without being wavering—as if all the requisites of the different kinds of flight were centred in these omnivorous wanderers and useful scavengers. Their eye, too, is keen—not confined to short ranges, as well as suited to guide the carrion crow to offal on the sea-shore as to cause the sudden wheel of the rook or daw to snatch up a piece of bread on the street. Exposed to many enemies by their wandering habits, their intellectual qualities are equally acute and ever on the alert, for, though bold and daring, they are wary and cautious. They are no specialists, but are specially fitted by nature to be amongst her best *all-round* birds. But it is only when domesticated that their intelligence is best observed, while their docility and faculty for observation prove their brain power is exceeded by no other bird—in fact, if taken young they become not only familiar, but obtrusive and impudent.

Genus CORVUS. (*Linn.*)

There are five species of crow—the raven, the carrion crow, hooded crow, rook, and jackdaw. In each the bill is strong, conical, cultrated, straight at the base, but bending slightly at the tip; can dig, lever, break, or cut with ease. Their powerful legs and feet, armed with strong curved claws and scutella, can run on a ploughed field or grasp a telegraphic wire. Though their usual walk is an easy stride, they can run or hop with equal celerity. Their wings are long and pointed—fourth quill longest—and rounded tail of moderate length, in the exact proportion to suit all kinds of flight.

THE RAVEN.

Corvus Corax. (*Linn.*)

"And the raven, never flitting, still is sitting, still is sitting
On the bust of Pallas, just above my chamber door,
And his eyes have all the seeming of a demon that is dreaming,
And the lamplight o'er him streaming throws his shadow on the floor;
And my soul from out that shadow that lies floating on the floor
Shall be lifted—'Nevermore!'"—*Edgar Poe* (*from the Persian*).

This is not only the largest of the genus but one of the most sagacious of our native birds. To prove its general adaptation, it is found in every quarter of the globe, braving the ice and snow of Greenland as well as it bears the heat of the torrid zone—like a winged type of man himself, a feathered Stanley—cutting his way through the dark forests of Central Africa; or a Dr Nansen, sailing and sledging in search of a north-west Polar Sea. But as my task is to describe the birds about St Andrews, I must limit my range to the two Lomond Hills of Fife, the only place I know where it breeds in it; although, as Lady Macbeth says,

"The raven himself is hoarse
That croaks the fatal entrance of Duncan
Under my battlements."

There might have been one on Falkland Palace near by, sleeping in the "Howe o' Fife," when the young Duke of Rothesay was dragged to be starved to death in its dungeon—as the raven, like the kite, was once common.

In cursing the birth of Richard III. Henry VI. says—

"The owl shrieked at thy birth, an evil sign;
The night-crow cried, aboding luckless time;
Dogs howl'd, and hideous tempests shook down trees;
The raven rook'd her on the chimney's top;
And chattering pies in dismal discord sung."

Proving that ravens as well as kites frequented chimneys in Shakespeare's time; also, when Leontes, in "The Winter's Tale," orders Antigonus to take the new-born babe to some desert, he exclaims—

"I swear to do this, though a present death
Had been more merciful. Come on, poor babe,
Some powerful spirit instruct *the kites and ravens*
To be thy nurses."

In "As you Like it" he makes it as common as the sparrow, for old Adam prays—

> "He that doth the ravens feed—
> Yea, providently caters for the sparrow—
> Be comfort to my age!"

It recently bred on Ravenscraig at the West Lomond, at Crigingaw on the east, and on Ravenscraig Castle, near Kirkcaldy.

It used to breed on high buildings, cliffs, and church steeples, as jackdaws and pigeons do now. But times are changed, so if you wish to study the ravens' habits you must retire to the wildest, loneliest districts of Scotland, where, like Rob Roy of old, he leads a solitary life. In Norway, where birds are cared for, they still abound, and a score may be seen, like rooks here, and allow you to pass within a few yards—a proof that kindness begets confidence, as ill-usage begets fear; for with us it is almost impossible to get within range unless in the breeding season, when, taking advantage of paternity, every cruel expedient is taken to exterminate this sagacious bird. No wonder Tennyson says—

> "A raven ever croaks at my side;
> Keep watch and ward—keep watch and ward."

Selby and others say—"It commits great destruction amongst lambs and sickly sheep by picking out their eyes and leaving them to a lingering death, and that young ducks, chickens, and goslings also fall a sacrifice to its voracity. Hence, perpetual war is made against it by the shepherds and husbandmen." If it cannot get offal and carrion, I have no doubt this is true, although I never saw it pick out the eyes of sickly sheep or lambs. But, as Burns says of the mouse, "What then? Poor beastie, it maun live;" and Shakespeare says, "Young ravens must be fed." Like all creation, it has a useful mission in its life, and were we to exterminate every creature that preys on weaker ones, I fear this wicked globe would have to be burnt up—"Nor leave a wreck behind," as the poet has it; for minute, meddling parasites would devour each other and prey upon its ruins if man had the control. It is pitiful, no doubt, to see a hawk clutch and tear a linnet or a gold-crested wren; as pitiful to see the linnet or the wren catch a butterfly and tear its wings off piecemeal to make it fit to swallow; or see a spider do the same with a still smaller fly for the same universal purpose, in harmony with Nature's design;[*] and not so pitiful as to see man—lordly man, "the paragon of animals"—the possessor of reason, in the name of Christ and civilisation, preying on the lands of others and shooting down his weaker brother man. But I fear, like the negro and the savage, or the "sick man" in Turkey, that the lambs had been *very* sickly before their eyes were picked out; for, as the Bastard says in "King John"—

> "Vast confusion waits
> *(As doth a raven on a sick-fallen beast)*
> The *imminent decay* of wrested pomp."

And Cassius, speaking of the two eagles which followed the Roman Army, said—

> "This morning are they fled away and gone,
> And in their stead do *ravens, crows, and kites*
> Fly o'er our heads, and downwards look at us
> As we were *sickly prey.*"

But Nature seldom outrages herself so far as commit acts of cruelty for cruelty's sake. The inexorable law of life—the strong preying on the weak—must be obeyed, but piecemeal mutilation is no part of her great beneficent plan; but if so, then *Nature* and not the raven is to blame. The only parallel I know is that recorded of the savages of Abyssinia, who are said to have cut steaks off the living ox and kept the beast alive for further use; or the gradual bleeding of the Christian's calf to make the veal whiter for the Christian stomach; or the equally ingenious plan of nailing the feet of geese or turkeys to the floor to make them fatter for the Christmas dinner. But the chief food of the raven is carrion and offal of all kinds, carcases of sheep, cattle, dogs, cats, &c.—from a mouse to a dead horse, from a pea to a potato, from a sprat to a whale—and dead fishes of all kinds lying on the seashore; but being omnivorous, and having a wide scope of flight, like the carrion and hoody crows, it also preys upon weak young quadrupeds and birds, or what it can get, and sometimes commits havoc even on barley. As an instance of its varied food—"A large herd of grampus whales were driven ashore on the Island of Pabbay, in the Sound of Harris. A great number of ravens collected from all quarters and remained for weeks feeding on the carcases. As harvest was near, the inhabitants feared that when the supply of food failed the ravens would attack their barley, from which they expected to pay their rents (illicit distilling being then carried on). Many plans were tried to frighten them away without success. The ravens in a body roosted on a low cliff on the east side of the island, crowded together on the shelves. Some of the men went after dark and caught a number, took them away, plucked off all the feathers but those of the wings and tail, and in the morning, when the rest were leaving their roosting-places, let loose the living scarecrows, which so terrified the others (or they wisely took the hint) that, like a routed army, they fled in a body, left the island, and did not return." Now, no two kinds of food could be more varied than blubber and barley. But it is well able to fulfil its varied mission, for though simply it is powerfully armed. Its strong beak, three inches long, can clip flesh as well as an eagle's, or pick a bone as clean as a tomtit's, and can dig into entrails or suck an egg better than either. The upper mandible has its ridge slightly arched and bent at the tip. The sides are convex, the base concave, covered with bristles for half its length. The cutting edges are sharp, the tip acute. Internally it is concave and grooved, as if specially made for use. Nor are its powerful legs, protected by eight armoured scutella, and feet armed with strong, sharp claws, less effective for use or war. Its muscular wings and well-knit frame, its neck of medium length and strong, and its large, oblong head, arched about the same curve as the bill, form a perfect base for its chief offensive and defensive weapon, as if Nature specially designed the raven to be a winged piece of mechanism of the highest order for general use ; and well may she be proud of her handiwork, for this gloomy bird is perfection itself for the mission it has to fulfil. Yet it is no match for the peregrine falcon in the air. An eye-witness saw them meet. The raven fell dead, its throat ripped up by the hind claw of the falcon, as clean cut as by a knife, in its upward swoop. But on the ground the falcon is no match for the raven. It is an early breeder, begins to repair its old nest in February, lays five or six eggs, small for the size of the bird—2 inches by $1\frac{3}{8}$—pale or dark green, spotted and blotched, like those of the carrion crow or rook ; but all the eggs of the genus resemble each other ; so do their nests. It is bulky and deep, composed of sticks and twigs of heath, plastered with mud, lined with grass, wool, and feathers; is comfortable, and, like all connected with the ill-omened raven, made for utility. It is usually built on high inaccessible cliffs, both inland and by the seashore, sometimes on trees, but generally on a ledge overhung by the rock, as Wordsworth says, on

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[*] Butler says in "Hudibras"—
> "So Naturalists find out, a flea
> Has other fleas that on him prey;
> These too have other fleas to bite 'em—
> And so proceeds, *ad infinitum.*"

> "An area level as the lake, and spread
> Under a rock too steep for man to tread,
> Where, sheltered from the north and bleak north-west,
> *Aloft, the raven hangs a visible nest,*
> Fearless of all assaults that would her brood molest."

In his "Excursion" with what rapture he exclaims—

> "Oh! when I have hung
> *Above the raven's nest* by knots of grass
> And half-inch fissures in the slippery rock,
> But ill-sustained, and almost (so it seemed)
> Suspended by the blast that blew amain,
> Shouldering the naked crag—oh! at that time,
> While on the perilous ridge I hung alone,
> With what strange utterances did the loud, dry wind
> Blow through my ear! The sky seemed not a sky
> Of earth; and with what motion moved the clouds!"

And how graphically, yet how simply, he paints "The Silent Tarn in Helvellyn"—

> "There sometimes does a leaping fish
> Send through the tarn a lonely cheer;
> *The crags repeat the raven's croak*
> *In symphony austere.*"

In defence of its nest it will attack the eagle if near it, and when it has driven him away, has a peculiar habit of tumbling on its back in the air (as you may have seen rooks do) to show its satisfaction; but sometimes they breed in the same vicinity, as I have found the nests of the kestrel and the carrion crow on the same tree. It sometimes breeds within 30 yards of those of the cormorant, guillemot, and rock pigeon; nor does it carry off their eggs or young—strange inconsistency. It knows that man with a gun is its worst enemy, for, if out of his range, it will share with the shepherd's dog or the eagle, and seems to enjoy company over its meals, which led Linnæus to call it "*Convialis*"—met for the purpose of feasting, still proverbial in the Hebrides and Highlands, where it is named biadhtach, in Gaelic, ravening—met for the very purpose of guzzling and making merry. To bear this out, when a large carcase is found (like the whales alluded to), it is singular where so many of these solitary birds come from, where none were seen before, unless by some means of invitation. A score, even a hundred, may be seen croaking, tearing, and gobbling it, some at the head, others digging into the abdomen, dragging out and running away with the intestines, some hauling one way, some another, for several feet, croaking, squabbling, and evidently enjoying their assembled feast. Of all birds, Noah should have known better than to have sent the raven from his ark expecting it ever to return when there were so many carcases of all kinds floating on that strange deluge of rain which could drown a wicked world—all except cetaceans, crabs, and fish, for water could not drown them—nor flood the sea. Like the vulture, it was thought scent led the raven to its feast, but I think it is its keen eye and sagacity. The one nearest spies the "sick-fallen beast," and as it flies towards it its peculiarity of flight—like a girl shaking her skirt of invitation—leads the next to follow, and so on, like the fiery cross of old, till all in the district are invited to the welcome feast. In calm weather it soars at a great height—no doubt looking for prey, else why so high? It cannot be for pleasure—it gets enough of flying—and Nature has an object in all her actions, as a man, wishing a better view, climbs a tower or a hill for a more extensive range. Philosophic Wordsworth says—

> "Nature fails not to provide
> Impulse and utterance—the whispering air
> Lends inspirations from the shadowy heights
> And blind recesses of the cavern'd rocks
> One voice—the solitary raven flying
> Athwart the concave of the dark blue dome,
> Unseen, perchance above all power of sight."

And in his Address to the Pet Lamb, the little girl says—

> "Here thou need'st not dread the raven in the sky,
> Night and day thou'rt safe—our cottage is hard by."

If unmolested, it breeds in the same spot year after year. When once paired, it is for life; yet, strange, when one is killed, how soon the other finds a mate. It is common in the Orkney and Shetland Isles, and not uncommon in the north of Scotland. When staying in the little town of Brora, near Golspie, in April 1883, one day, walking round Loch Brora, on passing Carrol Rock, a huge mountain rock 1,500 feet high, the gamekeeper told me that eight or nine roosted on it nightly, along with a pair of peregrine falcons, their deadly enemies, which had their nest, with eggs, in one of the ledges; but the rock is vast. He shot two as they were flying to roost some nights before. "Step up here," he said, "and I will show you the carcase of a red deer buck, as you seem interested in natural history." So we stalked a short way up among the trees. There lay the carcase of the deer. "That fellow was wounded last year, and though his leg was broken, he kept up with the others, and being more wary, we never could get near him. He has been struck with two bullets, one on the antler (which was broken) and this on the bone of the leg," showing me the broken leg, which nature had mended. "He has been large," I said. "No, he would not be above 16 stones at his best, and we have shot them 23½ stones weight. He seemed as big as a donkey, had left the hills, and come down to this secluded spot near the loch to die. As the carcase had lain some time there was a strong smell. "Is it not strange the ravens had not found it out, so near their roosting-place?" I remarked. "They couldn't see it down here for the trees," he said. "No, but they might have scented it, and this proves that carrion birds are not guided by scent, but by eyesight, for that dead stag would not have lain so long on the open heath or mountain-side near so many ravens without being seen and pounced upon," I replied. "I am afraid not," he said. I felt satisfied with this convincing proof of it being the eye, not the scent, that directs carrion birds to their prey, for here was the natural test which Audobon applied to the vultures in America by his stuffed deer in the open, and his dead hog amongst trees. As well say the kestrel, when hovering above a mouse or a beetle on a stubble field is guided by its scent, not by its piercing eye, or that the wheeling solan goose, or restless tern, fluttering above the sea, peering down below its surface, is directed by an impossible scent before they make their unerring plunge; so is it the same perfect natural telescope which guides the vulture, the raven, and the carrion crow to their lifeless prey. Without its eyes I fear you may take the raven's life, as its scent, however fine, would never lead it to its unseen food. As four herons flew by, I asked if they bred here. "Yes, over yonder on the high trees in Gordon Bush," he said. "Oh, yes, I noticed them yesterday when walking up that side of the loch," I replied. When we reached the head of the loch my obliging friend, after directing me how to go up the glen to Balmakyle (though too late for that day), advised me to go round by the other side of the loch, shook hands, and parted. It was well I did so, for when I got back to Brora it was dark. Many stories are told of the raven's sagacity when domesticated. I knew of one which brought every bone it could find to the kennel of a mastiff which had a broken leg, as if it knew the dog could not provide for itself. Of another that got nearly all the servants into trouble by hiding a number of silver spoons, &c., until Master Ralph the raven was seen running off with one to an obscure nook, where all the missing articles were found. Mr Mackay, hotel-keeper, Overscraig, near Lairgs, had one lately whose sagacity he used to show off. One day he gave it his pocket-knife, with the signal to go and hide it. Instead of performing the trick in the usual way the raven swallowed it, and turned to Mr Mackay with a knowing look, as if to say, "Will that do?" The onlookers were convulsed with laughter at the chagrined look of its master at the supposed loss of his knife. It was 3½ inches long, but it was ejected and got next day. A tradesman here has a very fine one, which he keeps in a large wire cage. It was got with three others out of a nest on the Minagraff Hills, Kirkcudbrightshire, by the gamekeeper. It is now twenty years old; the rest died. On the keeper's death the widow gave it to her St Andrews friend. Before he got it it was kept next the kennel near the keeper's house, where it learned to speak a lot of sentences which it picked up from the keeper speaking to his son Johnny, such as, "Are you there, Johnny? are you there, Johnny?" and if Johnny did not come quickly—"Come awa', Jock!" was angrily said, which this raven still perfectly imitates, and when needing food it also cries, "Come awa', come awa'! Johnny's hungry!" It also whistles like the keeper on his dogs, and cries, "Kennel up! kennel up!" and, as if speaking to tramps, cries, "Who's there? what do you want? Get out! kennel up!" &c. When he throws a pigeon's egg, it catches it with unerring certainty in its bill, rolls it in its mouth, flies down, pierces a small hole, and sucks it clean, and eats every bit of the shell.

The male is 26 inches long by 52 inches in extent of wings; female, 25 in. by 49 in. It is said to live about 100 years. "Black as the raven's wing" is an apt expression, for it is so intensely black as to be glossed with purplish-blue reflections on the upper parts and greenish-blue on the under; from point of beak to tip of tail—including legs, feet, and claws—all is black; iris, dark brown. Shakespeare makes Ulysses say, "The raven chides blackness." Yet there is one now in the public gardens of Berlin pure white, with pink eyes, beak, and legs. The rest of the birds are terrified, and cower away from him as from a ghost—which would have justified Hotspur in his anger at Glendower for speaking—

Hotspur—" Of the dreamer Merlin, and his prophecies,
And of a dragon, and a finless fish,
A clip-wing'd griffin, *and a moulten raven*,
A couching lion, and a ramping cat,
And such a deal of skimble-skamble stuff
As put him from his faith."

It might also have puzzled Lysander in "A Midsummer Night's Dream," who in changing dark-haired Hermia for fair Helena exclaimed—

" Not Hermia, but Helena I love:
Who will not change a raven for a dove?"

Or, as the Duke says, in "Twelfth Night," or "What You Will"—

Duke—" Come, boy, with me; my thoughts are ripe in mischief;
I'll sacrifice the lamb that I do love
To spite a raven's heart within a dove."

And Queen Margaret says of Gloster in "Henry VI."—

Margaret—" Seems he a dove? His feathers are but borrow'd,
For he's disposed as the hateful raven.
Is he a lamb? His skin is surely lent him,
For he's inclined as are the *ravenous wolves.*"

King Henry also says in the same play, when Suffolk tries to comfort him—

Henry—" What, doth my lord of Suffolk comfort me?
Came he right now *to sing a raven's note,*
Whose dismal tune bereft my vital powers;
And thinks he that the chirping of a wren
Can chase away the first conceivéd sound?"

Or, as Iachimo says in "Cymbeline"—

" The cloy'd will, *ravening first the lamb, longs for the garbage;*"

For, as Hamlet cries to the players when waiting for the play—

Hamlet—" Begin, murderer; leave thy damnable faces, and begin;
The croaking raven doth bellow for revenge."

And when Iago eggs Othello on to jealousy, Othello exclaims—

Othello—" Thou said'st——Oh! it comes o'er my memory
As doth the raven o'er the infected house,
Boding to all—he *had* my handkerchief."

Also in that lewd play "Troilus and Cressida" Thersites cries—

> *Ther.*—"Would I could meet that rogue Diomid!
> *I would croak like a raven—I would bode, I would bode!*"

And in that forbidding play "Titus Andronicus," it is mentioned four times in one scene. When the Queen is found with the Moor, Lavinia says—

> *Lav.*—"Let her enjoy *her raven-coloured love;*
> This valley fits the purpose passing well."

In the dismal scene and wood the Queen says to her two sons—

> *Queen*—"Here never shines the sun, here nothing breeds,
> Unless the nightly owl *or fatal raven.*"

And just before poor Lavinia is outraged and her tongue cut out she pleads—

> *Lav.*—"'Tis true *the raven doth not hatch a lark,*
> Yet I have heard (oh, could I find it now)
> *Some say that ravens foster forlorn children,*
> The whilst their own birds famish in their nests."

We turn from this revolting tragedy to one sweeter, but little more wholesome, "Romeo and Juliet," in which Juliet, in her sudden full-blown love, exclaims—

> *Jul.*—"Come, night! come, Romeo! come, thou day in night,
> For thou wilt lie upon the wings of night
> *Whiter than new snow on the raven's back.*
> Come, gentle night—come, black-brow'd night,
> Give me my Romeo, and when he shall die,
> Take him and cut him out in little stars
> And he will make the face of the heavens so fine
> That all the world will be in love with night,
> And pay no worship to the garish sun."

Yet in the same scene, when her nurse tells that Romeo had killed her cousin Tybalt, she exclaims against him—

> *Jul.*—"What devil art thou that dost torment me thus?
> This torture should be roar'd in dismal hell.
> O serpent heart! hid with a flow'ring face!
> Did ever dragon keep so fair a cave?
> Beautiful tyrant! fiend angelical!
> *Dove-feathered raven! wolfish ravening lamb!*
> A damnéd saint, an honourable villain!
> O Nature! what hadst thou to do in hell
> When thou didst bower the spirit of a fiend
> In mortal paradise of such sweet flesh?
> Was ever book, containing such vile matter,
> So fairly bound? Oh, that deceit should dwell
> In such a gorgeous palace!"

I give these quotations merely to show the varied use Shakespeare makes of the raven—a favourite bird with him, as well as Wordsworth; but he revels amongst ravens and kites, eagles and owls, falcons and hawks. Strange, Burns never mentions it except once—when comparing a girl's black locks to the raven's wing—

> "Her flowing locks, *the raven's wing,*
> Adown her neck and bosom hing,"

as if Shakespeare and Wordsworth had lived amongst the rugged rocks and mountains of Scotland, and our national bard had "learned his tuneful trade" among the lakes and hills of Cumberland. As I have headed these notes on this gloomy bird by a verse from the singular poem upon it, copied by Poe from the Persian poem, I shall conclude with two of its last verses—

> "'Prophet!' said I, 'thing of evil! prophet still, if bird or devil!
> By that heaven that bends above us, by that God we both adore,
> Tell this soul, with sorrow laden, if within the distant Aiden
> It shall clasp a sainted maiden whom the angels name Lenore—
> Clasp a rare and sainted maiden whom the angels call Lenore?
> Quoth the raven, 'Nevermore.'
>
> "'Be that word our sign of parting, bird or fiend!' I shrieked, upstarting.
> 'Get thee back into the tempest and the night's Plutonian shore!
> Leave no black plume as a token of that lie thy soul hath spoken!
> Leave my loneliness unbroken! quit the bust above my door!
> Take thy beak from out my heart and take thy form from off my door.'
> Quoth the raven, 'Nevermore.'"

THE CARRION CROW OR CORBY.

Corvus Corone. (Linn.)

> "The fold stands empty in the drownéd field,
> And crows are fatted with the murrain flock."
> —*Shakespeare.*

This bird might be called the lesser raven it is so like it both in look and habits, only not so stoutly formed—the same deep black and glossy reflections, iris also deep brown, legs also armed with eight scutella, and basal half of the bill covered with bristly feathers. The bill is 2 inches long, and though hardly so strong comparatively as the raven's, its claws are sharper and more curved; eggs, usually five, also dark green and blotched, but I have got them light bluish green. They are proportionally larger and more oval than the raven's—1¾ by 1¼ inches; nest on trees, sometimes cliffs, of sticks, plastered inside with clay or mud, profusely lined with soft grass, wool, hair, and rabbits' fur. It also breeds early, but not in February, as authors say—at least in Fife—and I take my authority from the book of Nature. They have eggs about the same time as the rook, a month earlier than the jackdaw. It sometimes pairs with the hoody crow. Like the rest of the genus, it is omnivorous in the widest sense. Its chief food is carrion of all kinds, young birds, quadrupeds, fishes, eggs, roots, grain, or whatever it can get. But, as Bailie Nicol Jarvie pawkily says, "Corbies winna pick oot corbies' een." Forbidding stories are told of it attacking ewes in the lambing season, and horrible acts of cruelty while carrying on its mission in the world, which, I take it, are more reflections on the Creator than the creature. In "The Winter's Tale" Shakespeare makes Paulina say, when King Leontes ordered his new-born daughter to the desert—

> *Paulina*—"*The casting forth to crows his baby daughter*
> To be or none or little, *though a devil*
> *Would have shed water out of fire ere done't.*"

No bird is more destroyed by gamekeepers, and the wonder is it is not exterminated in the populous little "Kingdom of Fife;" but the proscribed solitary bird still lives and is by no means rare about St Andrews—may be found in every fir wood in the district. In 1893 a man shot seven one day on Tentsmuir. It is rarer in the north and middle of Scotland. About 40 years ago, wishing to know if the carrion crows bred on the big Scotch firs on Tentsmuir, I walked to Eden on April 14th, 1855, got a push over in the mussel coble, trudged through the moor, and climbed up some of the large firs on the outskirts. I got a nest with five fresh eggs on the tip of a big horizontal branch of one of them, 20 feet up. I measured the nest. It was 18 inches over all, 8½ by 4½ deep inside, compact, well built, and comfortably lined with rabbits' fur—no hair nor wool, the outside pretty thick pieces of whin roots, heather, branches, and fine birch twigs next the fur. The eggs were dark green, blotched over with dark brown. I got another with four fresh eggs, much lighter, bluish green, very oblong, pear shaped, $1\frac{7}{8}$ by $1\frac{1}{8}$ inches. This nest was also lined with fur—another proof that birds, like man, take what is handiest—the moor being a rabbit warren. I did not see any of the old birds. They had not begun to sit, or had eyed me coming over the moor, for the giant firs stand like sentinels on the outskirts of the straggling wood. There are twenty large firs, on which carrion crows, kestrels, owls, and sometimes a heron breed. On my way home by the road, wishing to know if rooks had eggs at the same time as carrion crows, I climbed up a tree at Seggie Rookery. I got two nests with five fresh eggs; and near Seafield brickwork at Eden I climbed one of the large Scotch firs (since cut down). I got other two rooks' nests with fresh eggs—proof they lay about the same time. When home I also got two with five fresh eggs at the Priory. But the week before I got some rooks' eggs from Feddinch deep sitten. They may breed earlier in large than small rookeries. On April 18th, same year, I got a carrion crow's nest with four eggs, slightly sitten, on the top of a small larch fir, 16 feet high, in a strip of wood near Allan Hill (since cut down).. The nest was nearly hid by the young branches and leaves. The crow flew off before I climbed up. When at the nest she came and hovered above me; then flew away, and sat on a sheep fence about 400 yards off, gloomily watching me; but when I raised my hand to take out the eggs, she returned and hovered above me all the time, craw-crawing; then, as if she knew the deed was done, gave one deep croak, flew away, and I saw her no more. When at the top of the tree taking the eggs, she never struck at me as a missel thrush—and even a little tomtit—has done when at their nests. This nest had some clayey soil intermixed with the sticks, but instead of rabbits' fur like those at Tentsmuir, it was lined with wool, sheep parks being close by. They often alight on sheep and cattle when building. On May 7th, same year, I started at 4 A.M., walked round by Guardbridge and Leuchars, to the old fir park on Tentsmuir, to take notes on the nesting of carrion crows, kestrels, sparrow-hawks, and long-eared owls, which breed there. I had a rope to help me in climbing up the large fir trees. I got two kestrels' nests, one with two, the other with four fresh eggs. I also got two carrion crows' nests, one with five eggs, deep-sitten; the other with four young ones, newly hatched. The carrion crow's nest, with the young ones, was on the same tree and within 10 feet of the kestrel's with the four eggs. I got a long-eared owl's with four young ones also on one of the big trees, and a sparrow-hawk's with five fresh eggs low on a birch tree. But although the falcon and the crow had their nests on the same tree, it did not alter their natures, for on leaving the wood I saw a kestrel soaring and wheeling over the moor chased by a carrion crow. I watched them closely. The falcon took it easy, outsoaring the crow when it chose, as if it knew its power of wing, coolly keeping out of harm's way—as if loth to quarrel with its tree-mate. On my way home through the heather I saw the same crow driven away by the screaming plovers, which detected it gliding suspiciously low over the moor, scanning it for eggs or young—especially the bare places where the lapwings breed—the curlews also screaming still louder in chorus, instinctively fearing the dreaded enemy of their young; but I noticed that on every occasion the crow paid deference to the lapwings by darting aside and avoiding their attack. I have observed that sparrow-hawks and kestrels always shun the attack of carrion crows, as the crow shuns the lapwing when intruding on their breeding-place. And, to show that small birds have not a constant dread of birds of prey, when I was up the tree inspecting the carrion crow's and the kestrel's nests, I saw a robin treading his hen on the next tree, thus paying deference to Nature, and paving the way for a nest and eggs themselves. Next year, on April 19th, 1856, I got a carrion's with five fresh eggs in the same wood, which I also inspected. It was composed of sticks, heather twigs, grass, with the roots and clods attached; then dry grass and slender birch twigs, all bound together with damp clayey soil, lined inside with rabbits' fur, hair, and wool, with one feather. Two days before I got one in a strip of wood at Kinaldy with only three half-sitten eggs, showing the number varies. The crows misled me. I had to climb up to a dozen old nests before I got the real one. They kept out of sight until I climbed a tree; they then hovered and croaked above my head as if the nest was their's; thus they did to all I climbed until I gave it up. Yet I was convinced they had their nest in the strip; but leaving the wood at the very opposite side, I spied it on the top of a Scotch fir, almost hidden by the prickly leaves—when I climbed up, strange there was no hovering nor croaking then. I just mention this to show there is no hard-and-fast rule with birds; and to show this more—being over on Tentsmuir at my favourite pursuit on May 29th, 1857, the shepherd showed me a carrion crow's nest on a low willow bush, the stem only four inches diameter, growing in the middle of a ditch about a quarter of a mile from the old fir park. The nest was only five feet from the ground. I could see into it from the heather. In this case the crow did not fly off (to reveal it) till we were within ten yards, then flew away with a loud "cra—a" out of sight. There were only two young gorbits in the nest. He said he knew it when it had only two eggs. I think I had harried their nest in April on one of the large fir trees, for the young should have been ripe or flown by May 29th. A water hen was sitting on deep-sitten eggs amongst the heather in the same ditch, within a few yards of the willow which held the carrion crow's young ones. The nest was compactly built with whin roots and heather stalks, fine birch twigs, and dry grass woven together, and finely lined with wool, feathers, and fur—but most wool. It was 17 inches over all, by 9 in. deep—the cup 8 by 5 inches deep. On April 27th, 1858, I took two eggs out of a nest at Allan Hill strip. I went back on the 30th, and found other two eggs in the same nest. I got another nest at Kinaldy the same day with five fresh eggs. This nest was profusely lined with wool and large pieces of rabbit skins—the crow having stolen the dry skins to save trouble. The gamekeeper was proud of his own bloody craft, but denounced the corby for taking pheasants' eggs, when he should have blamed its nature. As well condemn the swallow for killing flies, or the lawyer for skinning his client. He told me he shot both a crow and pheasant hen when it was on her back robbing her nest. He took the fourteen eggs and set them under a common hen to be reared, for the very purpose of being shot down or maimed in the game preserve for the sport and profit of his master—after all, so far as mock philanthropy is concerned, the eggs might have been as well in the maw of the crow. He told me his chief occupation was poisoning and shooting carrion crows, magpies, hawks, and owls. He took me to his lodge, and gave me two dead crows, three magpies, some hawks and owls. The week before, Cambo gamekeeper told me that in one day five guns shot 120 cock pheasants on Cambo estate, but no hens—these being preserved for breeding—as the Midianite maidens of Scripture "*were reserved alive*" for the use of the Israelites. When pressed in winter, the corby will also alight on the back of a rabbit, and with its powerful bill dig a hole in its skull (as a butcher does with an axe on the skull of an ox) and suck out its brains, as well as its eyes, when dead. But is this worse than catching them in stamps, lying for hours with broken legs, before being killed for the market? On February

28th, 1878, during deep snow, on going through St Fort Woods I got a full-grown rabbit with its skull broken above the right ear, and the brains scooped out. The hole was half-an-inch in diameter by an inch deep. The right eye was also scooped out, but nothing more, as I came up before it had time. Of course the rabbit was dead, as the ox is before being cut up for food. On May 21st, 1887, a corby swooped down, picked up a leveret the size of a rat, and flew off with it. Before our Links were turned into a mere golf park, they came regularly from Tentsmuir between ten and twelve noon, and after two o'clock, hunting for larks. They flew like hawks above them, swooped down, and seized them with their claws; when near ripe the young ones were often carried off. But though it preys on young quadrupeds and birds' eggs, &c., its chief food is carrion. Shakespeare makes Iden say when he killed Jack Cade—

"Thy head I'll bear in triumph to the King,
Leaving thy trunk for crows to feed upon"—

and Cloten says in "Cymbeline"—"If you fall in the adventure our crows will fare the better for you, and there's an end." Hence well named the carrion crow. Sixty years ago, when dead horses were not so much utilised as now, they used to be taken to the west sands, their skin and shoes taken off, leaving their carcases scantily covered with sand; I have seen a dozen corbies and hoodies tearing at the entrails and flesh. When a boy I used to bait hooks with bits of carrion, the line through the carcase, and over the sand hill; but the crows were very wary, not many being caught. This speaks of the past, and shows the sanitary state of St Andrews at the time. In December 1879 I was out on the sands, near Eden, looking for shells after a severe sea storm, when amongst a lot of gulls and other birds I saw a carrion crow flying with a large deep-sea mussel, six inches long, fixed to one of its feet like a living stamp. It flew about until caught, and was given to the skipper of a sloop taking in sand ballast at the "Outhead" in Eden. He kept it in the hold amongst the sand. I saw it; its hurt toes showed the power of the motor muscles of the shell fish. When lying on the sands with half-open bivalves, the crow had put its toes in to tear out the red foot of the mussel, when the biter was bit. It was long a question whether crows carried off eggs whole or stuck their beak through them. One was seen flying off with a wild duck's egg, which it let fall amongst grass; it was picked up whole—proof positive. In 1888, when golf sweepstakes were being played on Carnoustie green, on driving from the "tee" at the sixth hole a carrion crow swooped down upon the ball, rolled it until it got firm hold with its beak, and flew off with it. The player followed, shouting to make it drop the ball, but no use; so he lost his ball—another proof that it was its keen eyes, not scent, that detected its fancied prey. As a proof of its wariness, Mr Weir knew a nest, and wanted the old *pair* for specimens; but so long as they had eggs he could not get within shot. He waited till the young were ripe, made a screen of branches near their nest, crept in, and lay three hours; but, instead of feeding their young, they hovered about, croaking loudly. They had detected his ruse. He took down the screen, made another under a thick hedge with whins to defy detection, crept in, and again waited several hours; still no use—they had seen him go in. His next ruse was to take a lad with him, and both went in next day. The boy came out, covered the entrance, and walked away. They followed him a long way, croaking triumphantly, then returned and perched 500 yards off. They remained an hour, looking around with jealous care. At last the female alighted on a tree near her nest, stood motionless for a quarter of an hour, then fed her young. When she flew away the male came and fed them. They did this in rapid succession, till he got tired in his cramped lair, and shot the male. He returned three days after to shoot the female, and was surprised to see *two* crows alight on the nest, and feed the young—she had found another mate. He shot her, so his *pair* was complete. But not content—for (unlike Nature's *feathered* carrion crow) man is never satiated with slaughter—he went back next day, crept into his lair, and meanly shot the noble corby in the very act of feeding his adopted brood in the midst of well-known danger, while this *less* noble type of humanity left them in their nest to starve. All he said was, "It was one of the finest crows he ever saw." He "once shot a female *with all her brood*, just as she was putting part of a bird into the mouth of one of them;" and again, "*anxious to get the pair*," he took one of the dead young ones out of the nest, sent it with a boy to a rookery to pick out four rooks the same size for the male to feed until he went back again in two days, and "shot him *in the very act of feeding the young rooks with grubs*"—proof positive they breed at the same time. Strange, this carrion crow seemed to know the young rooks were his adopted charge, to be fed with grubs; and seems to bear out the opinion of some authors that they sometimes pair with rooks—although the old rook is easily known from the crow by the base of its bill being bare. Macgillivray says he was "less acquainted with the habits of the carrion crow than any other British species." Strange, such a voluminous author should have missed this well-known bird. The male is 23 inches long, and 41½ in extent of wing; female, two inches less—being the reverse of the *Raptores*, in which the females are the largest. Like the raven, it is said to live 100 years—proof that Nature wishes to prolong the species, no matter what mock philanthropists may say. The next species is

THE HOODED CROW.

Corvus Cornix. (Linn.)

> "Lay hands on him; a dog!
> A leg of Rome shall not return to tell
> What crows have peck'd them here."—*Cymbeline.*

This crow is so like the last in form and habits (though not colour) as to be at one time considered the female carrion crow. It is a little less, builds on trees and rocks, nest the same, and lays five eggs—pale-bluish green, spotted and blotched with dark brown. Though found in the centre of Scotland, it prefers the sea coast, hence its nest is often on cliffs. It is abundant in Norway, and migrates to us in winter. It is more rare than the last here. "On May 16th, 1858, when going through Bonnytown Strip, near Stravithy Wood, I saw two hoodies and two carrion crows walking amongst the young corn. After searching I saw a nest on the top of a high Scotch fir, about 50 feet up, almost hid by the branches. On climbing up, the old crows hovered above the tree, loudly croaking. There were five young ones, and, to my surprise, young hoodies, well feathered, but not ripe. The largest was grey on the back and breast, nearly as well marked as the adult. The next was black like a carrion crow. The other three not so well feathered, black on the back, the grey beginning on the breast. I brought the two largest home, and left the rest. The nest was newly built, deep, and well lined with wool. They clung so tenaciously with their claws to my hand that I had difficulty in pulling them away. The legs and claws were nearly as large as the old bird's; the bill softer and shorter; iris, light blue (adults, dark brown). They lay quiet, not a cry all the way home. Next day the blackest—least ripe—gave a slight 'cra-a,' and gaped for food. The other was mute. Next day they both gaped, and took food readily. I fed them with flesh, livers, fish-guts, bread steeped in milk; in fact, took anything eatable. I have now had them a fortnight. They are growing fine, and 'cra-a, cra-a,' when I come near them, and flutter their wings—glad to see me." [Note written at the time.] I had them above a year; they flew about the city, and always came to be fed, quite domesticated. They were very tame, flew down off a tree or the house-top, and alighted on my shoulder when they saw me; but the fate of all my feathered friends overtook them—killed or strayed. One by one they disappeared. One had all the fine grey and black of the hoody, the other all black like the corby; which made me think they might have been hybrids. The hooded crow used to breed in Stravithie Wood and other large fir woods in the district. In 1889 a pair bred in Kinaldy Wood, another at Strathtyrum. This pair flew to the mussel scaups, carried mussels high up in the air, dropped them to break the shells, then ate the fish. When our fishing-boats returned from Shetland that year a fisherman brought a pair of young hoodies from Shetland. His house was next my garden in North Street. He cut their wings, but they managed to get on a fine apple tree I had, which they destroyed by peeling off the bark as clean as if cut with a knife—another proof of their omnivorous feeding or wanton mischief. John Lonie, a keen bird-nester, shot a female on her nest at Allan Hill Strip in 1867. There were five young gorbs, which he threw down and killed, for, like the carrion crow, the hoody is marked for destruction. On April 5th, 1857, I got a fine male and female from Cambo gamekeeper, which I stuffed. The one was shot; the other stamped by the leg, which was broken, but the tendons held it for hours before killed. There were five, but he hunted them all down. Same date, when walking out the west sands, after a prolonged easterly storm, I saw thirteen hoodies, apparently drowned, lying scattered amongst the sea-weed and shells, and dead guillemots. I carefully inspected them; they were not shot. Being about breeding time, they had possibly been returning to Norway, had encountered the adverse gale, and been unable to reach it. When walking to Eden the same winter, I saw a hoody chasing a snipe on the links for nearly half-an-hour, flying zig-zag, back and forward, in a space of three-quarters of a mile. I watched the result. The crow won, killed the snipe, but did not carry it off when I went up to it. On speaking to a citizen about the hoody on my way home he said they were common on the sands about 1836—they used to feed on the carcases of the horses. In 1843 he caught two in one day. The plan he took was the same as I had done—baited a hook with flesh, attached to a long line passed through the dead horse, carefully hiding the string amongst the entrails, and passed it over the sand hills out of sight; but, he said, they were very wary. He had tried baited hooks on the sands close to the carcase, but without success; the only way was to hide the string. This reminds me of the wretched condition of the English cavalry before the battle of Agincourt, for in "King Henry V." Shakespeare makes the French lord exclaim—

> "Why do you stay so long, my Lords of France?
> Yon *island carrions*, desperate of their bones,
> Ill-favour'dly becomes the morning field.
> Big Mars seems bankrupt in their beggar'd host,
> And faintly through a rusty beaver peeps.
> Their horsemen sit like fixed candlesticks,
> With torch-staves in their hand, and their poor jades
> Lob down their heads, dropping their hides and hips,
> The gum down-roping from their pale dead eyes;
> And in their pale dull mouths the gimmal bit
> Lies foul with chewed grass, still and motionless;
> *And their executors, the knavish crows,*
> *Fly o'er them all, impatient for their hour.*"

I have often seen them on the mussel scaups at Eden, along with carrions and sea birds. In December 1856, on going through the Priormuir by the rough cart road amongst the whins, I saw a hoody wildly engaged with a full-grown rabbit, which was running from side to side of the road, the crow on its back fiercely dabbing at its head. When it saw me it flew off. The rabbit was alive, but both of its eyes out. This proves the power and fierceness of the hoody crow, and shows it can kill a full-sized rabbit as well as a stamp or gun. The general colour is ash grey, tinged with purple, but the head, fore neck, wings, and tail are, like the carrion crow's, deep black, glossed with blue and green reflections, the grey feathers pencilled with black lines. The bill, feet, and claws are black, and fully as long as the carrion's. The young are nearly black, except the breast—dusky grey. It is 20 inches long by 39. Like the raven and corby, they remain paired all year, and for all their faults (as thought by man) they live to a long age, which shows that Nature at least wishes to prolong the species.

The Rook.

(Corvus Frugiligus.) *Linn.*

> "'Twas now the hour
> When o'er the plain the fading rays of eve
> Their sober light effuse, and towards his nest,
> As heavily he flaps the dewy air,
> The *hoarse rook breathes his melancholy note."—Southey.*

The rook is so well known it would be like trying to tell how leaves come in spring to give a long description; yet it is an interesting bird—the only one that comes openly near man and trusts its big nest to his care in those general assemblies called rookeries, which form part of nearly every British estate where there are trees suitable for parson rook; nor is *their* "caw, caw" deemed a flaw, but an adjunct, for, like Longfellow's river, proprietors come and go, but the rooks caw "on for ever." It is hardly so large as the carrion crow, which it resembles in colour, not in habits, for the one loves company the other solitude. When near the rook is known by the scurfy base of its bill and throat, which some authors say is caused by digging for grubs; but it is a specific distinction to assist it in digging—a wise provision of dame Nature to help in clearing the soil of vermin. That tiny harrow does far more good than ill by the destruction of grubs. Owing to two large nerves which run down between the eyes and upper mandible, rooks have a finer sense of finding worms and grubs than other birds, and the nudity on the forehead and base of the bill is not caused solely by thrusting into the soil, for as feathers are full of blood to the roots, the grinding process would be a painful impediment in the rook's mission, and make it find its living some way else, for at each moult the stumps would come out and new feathers take their place—as Nature always repairs damage—she would never perpetuate such a blunder as this. Young rooks have been kept to test this. When they leave the nest there is no bareness, but before winter they begin to assume the scurfy protection of the old birds. Two were kept for the purpose. The feathers remained on the bill till August 16th, and by the end of the month the horny skin began to appear. The rook is essentially gregarious in nesting, roosting, and feeding; in March, busy with their nests at grey dawn, or returning, as observant Shakespeare says, "to the rooky wood," when "light thickens" and

> "Good things of day begin to droop and drouse,
> While night's black agents to their prey do rouse ;"

Or, when searching for limpets on the rocks in winter, following the plough in spring, or sedately walking about our streets, along with jackdaws, at early dawn, there, in company, will you see the rook, like good church attenders on their way to their pews, or farmers to the Cross on market days—"at kirk or market" always together, and, what cannot be said of man, always in harmony, except when building their nests, although I have seen them fighting like gamecocks on the ground, using wings, beak, and feet. Of all birds it is the most openly consistent in telling us when it repairs or builds. On the first of March, if the weather is favourable, and, unless their nest be harried, they have no uncertain two or more broods in the year, for, like Lammas Market, with its faddishly maligned switchbacks, sweetie-stands, caravans, and noise, the cawing of the rooks in company at Nature's call to perpetuate their "kind" comes only *once* in the year. They openly proclaim *one* brood in the *one* year—like *one* man *one* vote—but of equal value. At least I never bird-nested with the same certainty of finding nests as in April or May, when the hawthorn, like the flowers, begin to put on their summer dress, for, except our solar system, there is no hard and fast line in the minor laws of Nature. But although young rooks fly as early as May 6th, they have no other brood that year. Their nest of sticks, lined with dry grass, &c., is not so deep as the carrion crow's. The eggs—five —are also less—$1\frac{1}{2}$ by $1\frac{1}{8}$—bluish green, blotched with dark brown. The bill, though as long, is not so strong. It is $2\frac{1}{4}$, but it looks longer by the bare skin being as far as the eyes. The head is less and seems more so from the same cause. The plumage is deep black, glossed blue and purple ; bill, legs, and claws also black. The only place that seems white is the scurfy skin at its base ; but pure white ones are seen as freaks of nature. While sitting on her eggs the female is supplied by the male with food, in getting which she flutters her wings like the young. The old remain paired all year. Moulting begins and ends in September ; beginning at the head, is gradual, so as not to impede flight—not like the poor crab, which casts all its shell at once, and lies helpless in a warm dub close inshore—a prey to every bird or fish that needs unresisting life, and, as a "pillan," the best bait for the handline fisher, which I have often tested. They may be seen poking about their old nests in October. St Valentine's Day, the 14th of February, is said to be the time the young begin to court, but after moulting, amidst the general flocks, pairs and small groups may be seen in company, so the young may pair in October.

On 5th December 1888, on my way to Tentsmuir, I noticed them at Earlsha' in pairs repairing their nests for the "chief end" of life, as if it were the first of March; but it was mild, and the two previous months were stormy. At Eastburn and Driffield in Yorkshire that year they had eggs in October and November. On November 11th, 1889, I saw them building here, also on January 2nd, 1890; but, as already said, there is no hard-and-fast rule with birds or nature generally. When courting they have the habit of bending their heads and spreading out their tails stiff like fans. They also, at this all-powerful time, fall and tumble in the air like fools, and even make a pitiful attempt to sing. When pressed they can build their nests in two or four days. A pair began on a solitary ash tree in a garden near my own on March 7th, 1886; by the 11th it was finished. On the 12th it was torn down by a score of rooks from the adjacent rookeries at Seaview, the United College, Dean's Court, the Priory, and St Leonard's. Some stole the sticks for their own nests; others merely tore them out and let them drop, as if angry at this pair daring to set up house for themselves. After it was torn down the indefatigable pair began again in the same place. It was torn down and partly rebuilt a dozen times. I threw stones and tried to frighten the thieves away, which, along with the pluck of the pair, succeeded, for on the 18th it was finished. The two had to keep out of sight, or they also would have been attacked as at first. On the 18th I saw the male fly down into the garden, leaving the female to arrange the nest. She came out and "cawed;" he at once flew up and fed her. She seemed pleased, and fluttered like a young one. I thought I had never seen a finer mark of conjugal affection, after the prolonged struggle against such heavy odds. They reared their young till nearly ripe. One night I heard a pitiful cawing. I divined the cause. That night the nest was harried by boys. The same year a pair built on a high chimney betwixt two cans near St Leonard's, and reared their young—the rookery there being limited by some of the trees being cut down. In May 1881 a pair inspected the top of a schooner's foremast at Warnemünde; next morning they were busy building their nest; in four days it was finished, and in ten there were five eggs in it; but another pair tried to dislodge them. A scuffle took place, and knocked out one of the eggs. As the schooner was windbound and sailed next day, the nest was torn down; the four eggs were blown, and prized by the captain as a memento of the singular nest on his schooner's foremast. The schooner was owned and sailed by our present Harbourmaster, Mr Deas, who at the time wrote to his brother here, saying:—

> "The same day we came down from Rosstack two crows came and held a survey on our mast-heads—more particularly the fore-mast-head (I mean the lower mast-head)—and having found a site they approved of, they commenced operations very early next morning on the fore-mast-head, the foundation-sticks being laid before any of us were up. And, the day before we sailed, five eggs were laid. The wind changed, and we had to dismantle the whole."

His mate was so anxious about the eggs that he tried to get them set beneath a "clocking" bantam hen. Early in March 1893 a pair built on an elm tree near Kinness Burn. They must have been young birds, proud of a big house, for they built until the nest was 32 inches high. As a natural result of pride it was blown down in a gale on the 14th; but they showed true pluck. They did not sit in despair, as man might have done at such complete destruction of his mansion, but at once began to construct a *less* nest—as experience not only teaches fools but rooks. It was finished on the 20th, and in the more humble structure safely reared their young—another lesson from a bird! In 1887, March, as usual—like Sir William Harcourt—came in blustering, cold and stormy, which delayed them till the 5th, when they partly began to build. On the 9th a heavy easterly sea and snowstorm set in. On the 12th and 13th, when the ground was covered six inches deep with snow, they persevered, and flew to the sea beach for sticks when they could not get them on the ground. I went to the East and West Sands and Kinkell Beach to observe them. They selected, tried each stick, shook them, and, if satisfied, took them to their nest, for, if late when they begin, they are determined to finish; but I have seen them begin on the 22nd of February, and by bad weather wait till March 7th. They were late, and worked overtime, for I watched them till half-past six o'clock—nearly dark—busy carrying their sticks—even on the Sabbath night, when man was going to church—to rest, perhaps to sleep—in his pew. On an old hawthorn tree, planted by Queen Mary in Dean's Court, opposite the west gable of the old Cathedral, I counted twenty rooks' nests before it was shattered and blown down in December 1888. It was cut 5 feet 6 inches from the ground, is 2 feet in diameter, and still stands.

"To-day, May 20th, 1889, I see small sprouts beginning to spring from the old hawthorn tree, as if loth to be yet numbered with the dead. The trunk was 15 feet high, and shattered many years ago; but the rents were bound by iron bands, and covered with lead to keep out the water—thanks to the care of Mr Stirling."

When writing this local history of our birds, sometimes I have seen our streets at early dawn paraded by rooks, pigeons, and daws, acting as unpaid scavengers long before the hired ones were astir. One little note will suffice:—

"Half-past three o'clock morning, June 18th, 1888. I see 14 rooks—old and young, 9 jackdaws, 5 pigeons, and a tortoiseshell cat, stalking and prowling on the narrow of Market Street, where I write this, all looking for grub; but this is common on the streets of the grey old city by the sea, where there are six rookeries and six clerical denominations. No doubt these black-coated rooks and grey headed daws think they have as much right as Cardinal Beaton and the Black and Grey Friars had when walking over them to see the burning of George Wishart and Patrick Hamilton."

I have seen them in dozens on our streets at grey dawn, for, like the rest of the genera, rooks are greedy as well as omnivorous. Burns even compares a man kissing a woman to a "*greedy rook*." He also says—

"Oh, leave novels, ye Mauchline belles,
  Ye're safer at your spinning-wheel;
Such witching books are baited hooks
  For *rakish rooks* like Rob Mosgiel" (meaning himself).

They eat everything that comes in their way on the streets, fields, or sea-shore, from a laburnum seed to a potato, from a grub to a mouse, or a bit of cheese to a limpet. I have watched them in June and July on the rocks at low water turning over limpets and scooping out the fish. They bend their head, slip in the point of their bill sideways, and dislodge them as quickly as if they were lying loose. They turn them over, put their feet on the shell, and pick out the fish. One note will suffice:—

"On July 6th, 1882, being out the rocks fishing, I saw a number of rooks—many this year's birds—searching for food. On coming in the 'Lady Craig' I picked up a lot of limpet shells with the fish mostly scooped out. I watched a young rook so busily engaged it did not observe me; it put down its head, turned its bill sideways to get better under the limpet, and lifted it quite easily; turned it over, put its feet on it, gave a few dabs with its beak, walked a few paces, did the same to another, which it

> repeated a dozen times in a few minutes. Anxious to see if they were scooped out, as I did not think it had time, I picked up 11 limpets ; none of them were cleaned out—most only touched, which I considered great destruction for little good ; but, being young, it had not been up to the job. Other limpets I got were nearly all scooped out."

But sometimes the biter is bit, for on February 29th, 1862, a rook was found dead amongst the rocks, with its bill firmly clinched in a partan's claw. I saw one fly up with a large piece of fish roe ; it was chased by another so fiercely that it let the roe drop. The other pounced down and fed, showing that nothing comes amiss to parson rook. On September 5th and 11th, 1878, I saw flocks of them, along with jackdaws, pigeons, and starlings, feeding together on stubble fields—especially where the stooks had been—and several on the stooks. On May 3rd, 1884, one was seen hopping on a field, nearly choked. On being caught, a full-sized mouse was found almost swallowed, the tail only sticking out. The mouse had been caught alive, but was dead. On being pulled out, the rook flew away. They sometimes fish like herons in shallow water for smolts. When working at our boats in the upper harbour at ebb tide, one came regularly and watched the shallow burn for the crabs, which it caught and demolished piecemeal, paying no heed to us, being as busy catching crabs as my son was in sorting his boats. On May 20th, 1889, I saw one flying to the tops of the fishing boats' masts and picking the grease off the ties. On 8th December 1888 I watched two perched on a telegraph wire near the Swilcan Burn. A stiff breeze was blowing, and to show their perfection of feet they steadied themselves like tight-rope dancers, but without poles. They flew to a laburnum tree close by, pulled off the pods, flew back to the wire, set the pods under their feet, and picked out the little black seeds. I watched this closely. I went to the tree, saw the pods, went under the wire, and got the empty ones. Now, here is convincing proof of their all-eating propensity, as well as perfect structure, to be able to perch on a slender wire as well as on a tree or a spire, and be able to pick out a tiny seed upon it, as well as a grub or a potato on the ground—showing that its big, rough-looking bill and armour-plated legs and feet have been designed with the greatest care.

As I wish this unassuming history of our birds to bristle—like the hedgehog—with many little facts from the unprinted book of Nature direct, I may say, on coming up the Pends from the harbour at dusk on April 24th, 1889—a very violent N.E.

gale and drenching rain—I noticed that the males, for shelther, roosted on the lee side of the nest—some under it, some on its lee rim, and some sat inside, along with the female and the young; the trees swaying from side to side formed excellent and safe, though very old, patent wicker cradles.

A proprietor having magpies but no rooks in his policies, wishing a rookery, took out the magpies' eggs and put rooks' eggs, which were hatched and the young reared; but though the magpies hopped about with and carefully nursed them, the rooks were no sooner able to provide for themselves than they deserted their foster parents and went to their own kind. The old Kirk Session here are not so anxious about rooks building near the kirk, for on March 28th, 1893, a rook was sitting—safely, as she thought—near the church on a fine high alder tree in the area, which was ruthlessly cut down and the nest destroyed; but as another proof of quick building, the same rooks built again at Abbey Park and began to sit on April 7th. Like the rest of the genera it is easily tamed. In 1873 I knew one—a female—the coachman had at Mountmelville. It flew at liberty—quite tame—"cawed" and welcomed him, and sat on his shoulder. In March next year it went away for seven weeks, then returned, alighted on his shoulder, "cawed," and welcomed him as before, after its matrimonial duties were done, which shows that kindness begets confidence, also that the broad law of Nature—love—overrides all. The *Scotsman*, May 10th, 1893, says—"A rook has been fed daily by two ladies living at Eskside, near Musselburgh, for the last eight years. He is very tame, and comes flying as soon as he sees a plate with his food—in fact the plate has only to be waved when down he comes. Twice a year he vanishes for about a month. The brood generally comes with him and remains for a week or two near at hand, then disappears; and in the harvest time he comes for about a fortnight. He is not afraid of men or women or girls, but has a dread of boys. No doubt he has reason." Rooks generally begin to lay on March 6th. The young fly at Whitsunday. On May 6th, 1893 and 1894, I saw the young begin to leave the nest, scramble up the twigs, and make short flights. On April 6th, 1894, I saw a singular instance of upward flight. A lot of seagulls were flying over the small rookery at Abbey Park, pretty high up. The rooks left the trees and flew up amongst them. The gulls mounted higher, the rooks after them, mingling together until they soared up amongst the clouds, so high that the rooks could not be detected from the gulls—as if to see which could mount highest. At last the rooks left them and descended by spiral wheels, taking some time before they regained the trees on which were their nests and eggs. The old birds watched them and anxiously returned to Abbey Park. Industrious feeders, from dawn till dark you may see them on the streets, or rocks, or following the newly-ploughed furrow, plodding after the first law of life—love—or desire to perpetuate each kind, being the second, if not its twin. They have a pouch in their under mandible to store food for their young. You may see them stalking about as if their throat was stuffed. On May 13th, 1893, I saw one filling this pouch with something lying on the sands. I went to see what it was, and found it was gravel to help the digestion of its young. It is not a favourite with farmers, as the many scarecrows on potato fields testify. But as Shakespeare makes the *over* just deputy judge Angelo say in "Measure for Measure"—

> "We must not make a *scarecrow of the law*,
> Setting it up to fear the birds of prey,
> And let it keep one shape till custom makes it
> Their perch and not their terror."

The general belief now is that it does more good than harm, although Mr W. B. Barrows, of the American Agricultural Department, says—"They help the farmer by killing injurious insects and mice, yet their consumption of Indian corn, rice, oats, wheat, &c., more than counterbalances their good deeds. Crows not only eat young corn, but pull up the plants to get the germinating seed. They also harm potatoes, beans, pea-nuts, cherries, and other fruits. They disseminate insects and poisonous plants, eat beneficial insects, and destroy the eggs and young of wild birds and domestic fowls." But I know of a farmer being mistaken as to the cause of destruction of one of his grass fields. He declared they destroyed the grass by digging up the turf; but on close observation it was found the roots were entirely destroyed by myriads of grubs, and the rooks were busy eating the cause of the mischief, which had they not done the devastation would have spread next year and done incalculable mischief. So farmers must take the *ill* along with the *good*. A writer in the *Scotsman* in May 1889 says—

"A WORD FOR THE ROOK.

"Whether rooks are the foes or the friends of the farmer, has long been a controverted question. Some assert they do very considerable damage to crops, while others maintain that any mischief they do is more than counterbalanced by the immense number of slugs, wire-worms, &c., they devour, which are so destructive to young plants. That they do a certain amount of mischief, especially in dry seasons, is true; but they are often mistakenly charged with eating the crops, while they are taking the best possible means of protecting them. In illustration of this, some years ago, in early spring, a farm grieve tried to stalk a flock of rooks which were busy feeding on a field of grain. He requested me to shoot some of them as they were 'playing the vera mischief wi' the wheat.' Concealing myself behind a hedge, I asked him to startle them, which he did. I shot a couple as they flew overhead. 'Man, that's grand,' he exclaimed, as he came forward. 'I'll hing them up in the field to scaur ithers.' With the two rooks in my hand, we walked to where they had been feeding. We discovered numerous holes dug by their powerful beaks, and blades of grass strewn all around. On minute examination, I observed that the blades which had been pulled up corresponded with a considerable number not so bright in colour as healthy plants are; and digging up with my knife, I discovered a small grub adhering to the root. On opening the gizzards of both birds *I found a large number of grubs, but no trace of wheat or green blades was discernible.*"

"ANOTHER WORD FOR THE ROOK.

"During the protracted drought of last summer a blight seemed to have come over a large quantity of onions in a market garden at Craigmillar. The plants at first became slightly discoloured, and eventually withered away. My attention was called to this, that the gardener had his onions pulled up and eaten by the rooks. I felt certain that though the onions might be pulled up, it was not to be eaten. On visiting the spot, I at once saw that the onions were blighted, as if they had been sown where there was neither moisture nor soil. This led to the solution of the difficulty, for, as I anticipated, I found, upon careful inspection, that the onions were being destroyed by grubs which, in incalculable numbers, pervaded the entire area on which they had been sown. The object of the rooks in pulling up the plants was to devour these pestilent insects, as not one of the plants had the slightest sign of being touched for food. It was interesting to note the sagacity the rooks displayed in pulling them up, as in no case did they make a mistake, even when discoloration could not be detected by the human eye—proof of their fine scent. As, by scientific investigation, many palpable mistakes in agriculture are being discovered, so will the interest of farmers and gardeners be promoted as the facts of natural history become more generally known and more accurately understood."

To show their sense, rooks can count. A very large field was sown with wheat and a hut erected in the centre to shelter the boy who tended it. A gentleman who wanted some rooks for scarecrows took his gun and went into the hut with the boy; but the wary rooks divined the plot. A warning caw was given, and although they flew round and round, not one would settle within gun shot. He sent the boy away, but even this did not avail; but no sooner had he himself left than the rooks settled on the field in scores. Not to be done, he took two persons with him into the hut. The rooks again left the field. After a time he sent first one boy then the other away, but still the rooks would not settle on the field. Determined to test their power of counting, he took three persons with him, and again, after intervals, sent one by one away. This succeeded, for on the third person leaving the hut, they settled on the field, and he shot two. They could count as far as three, but, without practice, four seemed beyond their power. Like the rest of its genera, the rook is a slow flier, yet it can fly 25 miles an hour; but the heavy wild goose can fly 90 miles. Poets associate the rook with dusk and gloom, from the habit of wending its way slowly home to the "rooky wood" just before dark. For instance, Shakespeare makes Macbeth say to his wondering wife, after having planned the murder of Bancho, and his son Fleance at night—

"Come, seeling night,
Skarf up the tender eye of pitiful day,
And with thy bloody and invisible hand
Cancel and tear to pieces that great bond
Which keeps me pale! *Light thickens, and the crow*
Makes wing to the rooky wood.
Good things of day begin to droop and drouse,
While night's black agents to their prey do rouse.
Thou marvell'st at my words; but hold thee still,
Things bad begun make strong themselves by ill.

And Burns in his "Cottar's Saturday Night" says—

"November chill blaws loud wi' angry sugh,
The short'ning winter day is near a close;
The miry beasts retreating frae the pleugh,
The black'ning trains o' craws to their repose."

Southey also in his poem "On Contemplation" exclaims—

"Faint gleams the evening radiance through the sky;
The redbreast on the blossomed spray
Warbles wild his latest lay.
And, lo! *the rooks to yon high tufted trees*
Wing in long files, vociferous, their way."

But, like white blackbirds, there are sometimes pure white rooks. Two out of one nest were shot, their bills, legs, feet, and claws also white.

THE JACKDAW.

Corvus Monedula. (*Linn.*)

> " God bless your honours a' your days
> Wi' sowps o' kail and brats o' claise,
> *In spite o' a' the thievish kaes*
> *That haunt St Jamie's."—Burns.*

As the rook identifies itself with man by building openly on trees near his dwellings, the jackdaw comes still closer by having its nest hidden in the vents of his houses, as well as in holes and boles of trees, kirks, and ruins, and in old rabbit burrows on sandy downs and moors, or cliffs by the seashore. I have got their eggs and young 100 feet up in the College steeple, as well as in rabbit holes on Tentsmuir. It also fraternises with the rook by building on the same trees, and wandering with it for food on the same fields, but is later in nesting. Like the rest it is omnivorous, and when tame has all the thieving propensities of the raven. No bird is more expert at stealing or pouncing on the street, even at noon, and picking up a piece of bread or cheese before one's eyes than the "thievish kae." I have seen it eat from a worm to a young sparrow, from a pea to a pear. Its usual time for dainties is at early dawn in our streets, gardens, or back courts; and if you have jargonelles or other fine fruit ripe, take care of them, or the daw will do it for you. A discerning poet truly says—

> " The chattering daw, *most dexterous of thieves,*
> That oftentimes the careful housewife grieves."

And Shakespeare introduces it as the most likely bird to peck even at the heart of man, for he makes the philosophic villain Iago say to Roderigo, who accused him of following Othello—

> " O, sir, content you;
> I follow him to serve my turn upon him;
> Heaven is my judge, not I, for love or duty,
> But, seeming so, for my peculiar end;
> For, when my outward action does demonstrate
> The native act and figure of my heart
> In compliment extern, 'tis not long after
> *But I will wear my heart upon my sleeve*
> *For daws to peck at.* I am not what I am."

It is well named "thieving kae." At 4 A.M., August 23rd, 1878, I watched several alight on a jargonelle tree in my little garden. Selecting the ripest, they dabbed their beak into the fruit, adroitly broke it off, and flew off with it. As the ripest disappeared, I wanted to know who did it. Digging their beak into a ripe pear is different from the alleged digging into an egg. On June 27th, 1882, I saw a sparrow fly up to the crow steps with a large bit of bread opposite to where I sat writing. It was picking off small pieces to swallow, when a daw swooped down to steal it. Quick as lightning the sparrow flew with it to an apple tree, but it dropped to the ground; the daw bore it off in triumph. But instead of its food I have seen it steal the life of the sparrow. On July 18th, same year, I heard a loud "churr" when standing at the Town Kirk railings. On looking up to the trees I saw a jackdaw with a sparrow held down by one foot, and dabbing at its head with its beak until the "churr" was hushed by death. I shouted—the daw flew off like a rocket with the sparrow in its claws, as I have seen a sparrow-hawk do with one in its talons. So, I moralised, thieves and murderers are found where least expected—even within the precincts of a kirk!

It is called "kae" from its cry of "kae-a." Wishing to know from personal observation if it nested in rabbits' holes—doubted by some authors—I went to Tentsmuir on May 17th, 1862, to see for myself. I met a boy who lived with his parents in a small heather-roofed hut (now gone) near the old fir park. He told me he got six jackdaws' nests with eggs and young a fortnight before. He took me to the place. I saw a daw come out of a rabbit's hole. On digging in three feet I found the nest, with five young ones just beginning to feather. So this was proof positive of the fact and time they breed. The boy told me the nests were in about two or three feet. He got some of the eggs with his hands, the others with a crooked stick—the eggs from four to seven, usually five or six; paler than the rook's, bluish-green, spotted with dark-brown. The nests I examined in these holes were a layer of heather stalks and twigs, amply lined with fur, hair, and wool—proofs of a warren and sheep walk; the eggs, $1\frac{3}{8}$ by $1\frac{16}{}$. On the 31st I again went over to the moor. I met a gamekeeper and boy with a spade and bag. The boy showed me two daw's eggs, fresh, just taken from the nest. They got a nest with ripe young ones also in a burrow. The boy told me that he, along with other boys, got 63 daws' eggs in rabbits' holes that year.

He caught an old one in the burrow, cut its wings, and kept it; but it got away. I wish I had seen it, for a keen naturalist here says the jackdaws which breed on the moor are a different species, as their eyes are black, which I doubt. One day, when rambling for eggs on the moor, a lad, along with my sons, saw a daw's nest and eggs down the vent of an old hut. Not able to reach the eggs, he got his head down the wide vent, lost his balance, and stuck in the flue; he could neither get up nor down. At last, when nearly suffocated, he wriggled down—saved his life, but smashed the eggs. In April 1874 a pair built in a small nine-holed dovecot hung against the stable at the Links Cottage, and had eggs. The pigeons kept possession of the other eight holes. The daws cunningly put sticks across the holes on the row where their nest was. The pigeons, not to be ousted, went to the other shelves. The daws, equally persistent, barricaded every one of the holes. The gardener, interested in seeing them breeding in the same cot as the pigeons, removed the sticks; but the daws persistently barricaded the holes as often as he cleared them. This went on for days, until the gardener, in fairplay to his pigeons, removed the daw's eggs and nest, and stoned them away. I saw this done. In April 1879 when my schooner "Fear Not" was wrecked at Inchcolm, I, along with one of my sons, lived on the island for a week. On the 23rd we counted 22 pairs building on the S.W. end, where on the rocky face of the brae are plenty of holes amongst rocks and stones. The man with whom we lodged in the old monastery had an old horse called "Charlie," which was casting its coat, off whose back the daws got a plentiful supply of lining for their nests. We saw them often on its back, but, instead of resenting the liberty which the "thieving kaes" were taking with his old coat, "Charlie" seemed to enjoy the scratching, for he kept on grazing, paying no attention to them. I had often seen them on the backs of sheep like starlings picking out the kidds. They put large quantities of hair into their nests. One of the vents of the S.W. corner house in Union Street was choked. I got a mason to slap a hole six feet down from the top. The cause of obstruction was a daw's nest. It had been built on a broken bridge between two vents for some time unused. This nest was a felted mass of short hair (horses' and cows'), all colours—black, white, grey, and brown—with some bits of paper, pieces of letters, newspapers, and some horse droppings, all matted together. The mass was 11 inches diameter, roundish, and 6 inches deep—very few sticks, as it rested on the broken bridge. When sweeping one vent the felted mass just turned and choked the other, and *vice versa*, which caused the slapping. But in vents their nests are usually of sticks, on which is laid straw, dry grass, hair, wool, feathers, or any soft material handiest, often stealing silk handerchiefs, collars, &c. Sometimes before a proper base is made an enormous quantity of sticks is used, tumbling down the vent before a foundation is got. As an illustration, at Eton, the sill of a small opening in a high turret not being big enough to hold the nest, what did they do? Just what the crow in the fable did which wanted a drink out of the deep pitcher and got it by putting pebbles in till the water rose. So the daws began nine feet down on the wheel stair to raise the nest on a level with the sill. They raised their stick fabric perpendicularly up nine feet and accomplished their object. Could reason have done more? Mr Wolley, who saw this nest in the turret at Eton, says—"It took its rise from two or three steps of the circular stair. It was built up compactly, of neary uniform breadth, to a lancet window, the bottom of which was not broad enough to support a nest." This is a strong proof of forethought—if not reason—in jackdaws raising a foundation for their nest with sticks bit by bit perpendicularly up for nine feet to the desired level. It was like building the trunk of their own tree or their own chimney on which to build their nest, but how different from creeping into a sandy hole in a rabbit's burrow on a moor, which just shows there is no particular place for birds to build. Jackdaws remain paired all year. I have seen them billing on chimney tops in December. To corroborate what I said of the kestrel and carrion crow breeding on the same tree, a writer in 1894 says—"In Warwickshire last week I was shown what I think is remarkable. The top of an elm tree had been broken off by the wind. In the part where it was severed there was a kestrel's nest with five eggs. On the north side was a jackdaw's nest with young; and in a hole on the south side there was an owl's nest with one young owl and four eggs—all three nests within four feet of each other." Like the rest of the genera, the daw is easily tamed, and makes an interesting though mischievous pet. A butcher lad had one which accompanied him regularly to the country when driving, flying overhead or alighting on his head or cart, always returning home with him. A fisherman, Davie Waters, had one for two years which went out regularly to sea with him to fish, or haul his partan creels. It flew round about or settled on his boat, and sat beside him when he hauled up the creels, much interested, as it "Kya, kyad" with glee when he pulled out the live crabs as it sat on the creel. When the sail was set it settled on the yard. Whenever it saw him on the quay or pier it alighted beside him and flew round about, seaward and back again, as in pure delight to bear him company; and nothing pleased it more than accompanying him up the brae on his way home to his house in North Street. At night it perched on an iron peg behind the door. It is a pity this interesting jackdaw was accidentally poisoned the third year—death being the usual fate of our feathered friends at large. It frequented the rocks where the sewage outlet is, near where the refuse of the gas work is thrown. It came home quite well and died the same night. It entered the house by a window kept open for it. At the same time—1885-6—a boy, eight years old, at Fleming Place, had one. The first year it flew with him wherever he went. Next year it was given to a gardener who had a large garden on the south side of the city. He cut its wings, so it stayed there till 1886. After moulting, it began to fly about, so one morning it was found on the window sill of its old home at Fleming Place, and evinced the greatest pleasure by crying "Kya, kya" when it saw its old friend, the boy, who was no less pleased to regain his feathered companion. They remained true friends for the next three years. The last time I saw them together was on May 27th, 1889. I often saw it with the boy at the railway station, for his father being a goods guard he often took his dinner to him. The faithful jackdaw accompanied him, flying and chatting all the way. I have as often seen it flying to school with him and returning. At first it went into the school with him like the impudent one into the Kirk at Kent; but so long as the "kae" was a pupil there was no learning that day, so it had to remain outside and amuse itself by flying about the roof and grounds, and wait till the class came out. Then, when it spied the boy, it flew down upon his shoulder, crying, "Kya, kya," and went home with him. When at school, and its friend playing at the "bools," it was not an idle spectator, for it would trickily seize the marbles and fly off with them. Nothing pleased it better than running after and pecking the bare feet of the boys and girls—more for fun than injury, for it revelled amongst the children without fear or distrust, only it did not allow any but the boy to touch it. With him it had no fear. Though on the highest roof, if he cries "kya" it flies down and alights on his head or arm. When not at school, it perches on a lamp-post near his house, so placed that it can see which way he comes, as there are three roads. On this lamp-post it sits and waits till it sees him. It then cries "Kya, kya," flies to meet him, alights on his head, or runs and hops playfully before him, with all the signs of affection evinced by a faithful dog. It cries "Kya, kya" when he bids it, but for no other person. When the boy was away from home for a few days it flew about quite restless, seeking for him at all the places he used to go. When he came back it showed every sign of affection a bird could show. At home it runs and plays with the cat and dog, and roosts in a small press; but even at home it will not allow anyone to touch it but the boy. It is a female, has laid several eggs, but it does not fly away in spring and return, like the rook at Mount Melville. [As this was written at the time some of it is in the present tense.] After six years it died in the moulting. A similar mark of confidence appeared in *Nature Notes*:—

> "Mr G. C. Green records in *Nature Notes* for April a curious fact of a pair of jackdaws kept by him at Modbury Vicarage, South Devon. They had been taken from the nest, and during the first summer their wings were slightly clipped. After this their wings were allowed to grow, and they had full liberty. They were perfectly tame, came at call, and fed out of the hand, came into the house, and in the morning knocked at the windows for breakfast. In spring they flew away and joined their wild companions, made their nests, and reared their families; but this over, they came to the garden again, fed from the hand as tame as ever. But the curious thing was that after one or two seasons they brought another jackdaw with them—presumably the young of one of them—which was just as tame as themselves, although nothing had been done to tame it, so it was impossible to tell which were the original two. Moreover, when, after a few years, one of them was accidentally killed, another was brought by the other two."

A singular fact. So is this other one. A boy got a young jackdaw, cut its wings, and put it in the garden. Soon after, a lady went into the garden where the young daw was and was immediately attacked by the old jackdaws, which flew, screaming, at her face and cut her severely. They continued the attack till the lady screamed for help, and they were driven away—a proof of their courage and parental love. And as a proof of its impudence, the following paragraph appeared in August 1888:—

> "The audacity of the jackdaw of Rheims has been equalled if not excelled at Monkton, in Kent. During Divine service a jackdaw belonging to Mr Stapleton, Cotton, went into the sacred edifice with the congregation, and not only took a lively part in the responses, but also became exceedingly talkative at other times. The whole congregation were in a titter; the clergyman himself kept a straight face, while the school children broke

out into open laughter. Things became so bad that he ordered them out of the church. Then an effort was made to capture the intruder, which had perched itself boldly on the reading-desk. The bird, however, flew to the rafters above, where it remained talking till the end of the service."

A striking parody on the formalities of worship. It is more sprightly than the rest of the genera, walks and hops more gracefully, and more inclined to wrangle with one another, which may have caused Tennyson to write—

> "No hoary knoll of ash and haw
> That hears the latest linnet trill,
> Nor quarry trench'd along the hill,
> And haunted by the *wrangling daw.*"

All the four, from the raven to the daw, have a similar cry, as they are similar in colour, habits, and form—the short, sharp "kia" of the daw being merely the treble of the hoarse "cra-a" of the raven and the baritone "caw, caw" of the rook. The back of the head—especially old males—is greyish-white; the iris is also greyish-white, instead of dark brown, as in the other three. It is 14½ by 30 inches in extent of wings. In 1858, my brother kept a young jackdaw and a young tern together—a strange fellowship. He got the young tern on an islet in a loch near Dumfries. The next allied species is the magpie in genus *Pica*—the *Corvus Pica* of Linnæus.

Genus—PICA.

Magpie, or Piet.

Pica Melanoleuca. (*Vieill.*) *Corvus Pica.* (*Linn.*)

> "It will have blood; they say blood will have blood;
> Augurs, and understood relations, have
> *By maggot-pies, and choughs, and rooks,* brought forth
> The secret'st man of blood."—*Macbeth.*

Linnæus was not far wrong in classing the "maggot-pie" among the crows, for its head, bill, legs, and habits resemble theirs—only its short wings, long tail, and pied dress breaks the similarity. But it has the same nature, and shares the aversion of the gamekeeper; and, owing to its predilection for eggs and young game, is as much persecuted. As if aware of its marked dress and little speed of wing, it prefers the vicinity of trees with us, and rarely seeks open fields and moors; hence it is never seen following the plough like the rook, although it has as good a scent for tracing *maggots* (or *blood*, as Shakespeare has it). It also lives on maggots, worms, and grubs; runs and hops nimbly like the daw; but instead of the croak, caw, or kae-a, it has a chuckling, chattering cry, unlike any other bird, which may have induced Tennyson to say—

> "You'll only hear the *magpie gossip*
> *Garrulous under a roof of pine;*"

And made Wordsworth also say in his "Picture of May," that—

> "*The magpie chatters with delight.*"

As Shakespeare makes Henry VI. curse the evil birth of Gloster, and say—

> "The night-crow cried, aboding luckless time;
> *And chattering 'pies in dismal discords sung.*"

We have only this one species of the genus *Pica* in Britain. It is common in some of the fir woods about St Andrews, in spite of the deadly law of extermination against this handsome, domestic-inclined bird for merely trying to fulfil its mission in life—no doubt doing as much good as ill in the world, if man could weigh the balance properly. I think the poet Cowper in his "Task" is not far wrong when he says—

> "The sum is this—if man's convenience, health,
> Or safety interfere, *his* rights and claims
> Are paramount, and must extinguish theirs,
> Else they are all—the meanest things that are—
> As free to live and to enjoy that life,
> As God was free to form them at the first,
> Who, in His sovereign wisdom, made them all."

I fear the broad, wise law of Nature is unwisely interfered with by the lesser game laws, game preserves, and deer forests of man, where, on the mountain sides and fertile glens of Scotland, the crofter himself is deemed little else than a species of human vermin, who interferes with the sport or profit of the wealthy so-called sportsman. In Norway and Sweden it is upon the most familiar terms with man, naturally inclined to be near his dwellings, like the rook or jackdaw with us. Mr Hewitson says—"In Sweden neither the magpie, nor its nest, nor its young are ever touched; and in Norway it is one of the most abundant and most interesting of the Norwegian birds for its sly, cunning habits. It is upon the most friendly terms with the people, pecking close to their doors, sometimes walking into their houses. Few farm-houses are without some breeding under the eaves, supported by the spouts. In trees close by their nests were several feet deep, the accumulation of years of quiet possession." In the town of Drontheim he saw them building under the eaves of warehouses and on their churches, as jackdaws do here. Upon the roofs and on the tombstones a dozen of these beautiful and lively birds might be seen at one time. But, as a rule, the Norwegians are kinder to birds than we are, and as a natural result the magpie may be seen walking into their houses with pert confidence, while it is seldom seen in the forests away from houses. The opposite with us, for it is only in the thickest of fir woods or high hedges enclosing grass parks away from man that this wary (because persecuted) bird is seen. And, as if guided by instinct, its nest with us seems to be built as a fortress not to be taken, for it is often so domed over and hedged with such a mass of prickly thorns as almost to defy their eggs or young to be taken out. It is also an early breeder, builds in March, and lays from five to eight eggs—$1\frac{1}{4}$ by an inch—of a greenish-grey colour, spotted with brown and purple. They resemble those of the last genus, but more freckled. I have got their eggs chiefly in April and first of May. Like all birds, their nests vary. On April 24th, 1864, I got one on the top of a stunted larch fir, 12 feet high, in a thorn hedge, at Law Head, surrounding grass parks, six miles from here. It contained five fresh eggs. The nest was roofed, 18 inches across and 18 deep, composed of thorn and larch twigs, plastered inside with clay and mud and dry grass—like a blackbird's—abundantly lined with fine root fibres. The inside cup was 5 inches by 5 deep. There were two openings in this nest—for ingress and egress. I carefully measured and inspected it. Near the same place one was got on the 11th with six eggs; four were taken, two left. A lad took the two eggs on the 18th. Eight days after this the original finders went expecting to see two young ones, but were surprised to find six eggs. They again took four and left two eggs as before. They went back next week, and instead of two they again found six eggs. They took them all, but as they never went back again they did not know the result of this singular fact. On May 1st, 1882, I got another with five eggs on a stunted tree only seven feet up. It was large—24 inches across by 25 deep—

also domed, and surrounded by prickly hedge cuttings. I could hardly get in my hand for thorns. It was woven all round in two tiers—the one forming the cup, the other a dome, with an open space or verandah all round between the cup and the roof, so interlaced that, while the bird could slip easily out and in, it was with difficulty my hand could. In general there is only one hole in the side, just as large as admit the bird. Some hemlock stems in the roof of this nest were three feet long and $\frac{3}{4}$ in. thick. An old fable says—"The magpie's nest is the best architectural construction of all the birds, and that the magpie was chosen professor to lecture the other birds on the science of nest building. A quantity of material was collected and all the birds invited, but none seemed to listen except the little Jenny Wren and the long-tailed tit, for these were the only two that profited by the lecture, as shown in their domed nests." They have forgot the dipper's. A pair of magpies built in a gooseberry bush, but instead of roofing in their nest, they roofed and encircled the whole bush with briars and thorns as a barricade against prowling cats, foxes, &c., and from what I saw in that bulky nest in the low tree at the quarry I quite believe it. There was the usual compound of clay, grass, and fine roots inside. Sometimes the clay is so thick and hard as to resist shot when on a high tree. This bulky roofed nest reminded me of Tennyson's lines on the "College Council" after its anathemas—

> "You'll have no scandal when you dine,
> But honest talk and wholesome wine,
> And only hear the magpie gossip,
> Garrulous, *under a roof of pine.*"

At least under a roof of thorns. This sprightly bird would indeed "chatter with delight," and "welcome in May," were it allowed to come where it wants to be—near the dwellings of man. It would find plenty of refuse, grubs and worms, hence less need to trench on the game preserve, and fulfil its mission in a less destructive way than it is forced to do through the blind persecution of the very creature it wishes to be near. The birds could do without man, but man could not do without the birds—at least in warm climates—for his crops, his fruits, his skin, and even his life would be worried out of him by swarms of obnoxious insects. An author, writing of the East, says—"The West has its peculiar charms in sun and climate. America is not less dazzling; but the moral attraction of Asia lies in the sentiment of unity which you feel in a world where man is not divorced from Nature—where the primitive alliance remains unbroken—where the animals are ignorant that they have cause to dread the human species." There is a gentle pleasure in this confidence—in seeing the birds come at the Brahmin's call and eat from his very hand; in watching the apes on the pagoda roof, sleeping in peace, or playing with and suckling their young in as much security as in the bosom of their native forests. What must the Hindoo think of our boasted Christianity who sees what is jocularly called a "gamekeeper's gibbet"—that is, interesting birds destined by Nature to live on the exuberance of life nailed up on cross bits of wood for doing what the gamekeeper does in a far less justifiable manner, often for mere wanton sport, wounding and torturing, while the eagle, the falcon, or the hawk, or even the raven, the corbie, the hoody, the magpie, or the jay fulfil their mission direct with the least possible suffering or delay? What must he think, I say, when he sees such sprightly, pied, black, white, green, blue, and purple hued birds as the magpie and the jay barbarously nailed up on cross bars along with the missel thrush, the mavis, and the blackbird—not even for a scarecrow, but for the mean pride of ostentation—to gain the approving smile of a callous employer, or an extra guinea for such comtemptible and revolting shows?—the wise balance of Nature tampered with to suit the selfish so-called sportsman; while the true sportsman, the feeling-hearted naturalist, as well as every kind-hearted man or woman, is pained who sees such heartless, useless displays. All birds, like the butterflies, the bees, and the flowers are like the smiles of Nature, and whoever wantonly tries to exterminate what Nature created is indirectly blaming the Creator, for, the way the easily discerned, slow-flying magpie (along with other birds) are shot, trapped, and poisoned so mercilessly, is, as if their creation was a blunder and a crime; and yet they harmonise better in Nature's broad design than the pampered pheasant in the game preserve, or the rouged beauty in the ballroom. It is an inherent trait of the magpie's nature to draw near to man, hence in Britain it runs the greater risk of being shot. It is easily domesticated, like the daw, and makes an amusing, pert, if at times mischievous, pet. A gentleman had a tame one. He had also a young pike, two lbs. weight, which he kept in a large tub. He saw the magpie perched on the edge of the tub watching the fish, which, alive to the danger, sank out of harm's way. Next day he missed the pike; on a pear tree close by he saw the magpie preening its feathers, as if butter could not melt in its mouth, but at the foot of the tree the pike lay gasping, with its dorsal fin torn, its sides skinned—signs of a deadly struggle. How the magpie could haul a fish as heavy as itself out of the tub is proof of its power and intelligence. Another gentleman had a female of a different nature, for instead of killing chickens and ducklings, it protected them with maternal care. On the least sign of danger it flew to their rescue, and it drove cats or dogs away with determined courage, which shows that birds are trusting and kindly, or suspicious and wary, as they are used—as some poor dogs and human beings are made mad by sheer ill-usage. If the maggot-pie cannot get maggots and has to live on eggs or young birds, who is to blame? Yet the evil done is counterbalanced by the good, for, as Shakespeare says, "There is a soul of goodness in things evil." The destruction of owls make the rats and mice become plagues, as the destruction of rooks increase the pestilent wire worms and May bugs. Lord Erskine, in his "Farmer's Vision," aptly says—

> "Th' astonished farmer toils in vain,
> Each hour destroys his ripening grain;
> But Providence beholds the scene,
> And other beings step between;
> Yet let not man presume to know
> Their course, nor dare to strike the blow:
> Blind as the mole he snares, shall be
> Murmuring at the supreme decree;
> At random breaks that mighty chain,
> *No link of which is made in vain.*"

The greatest breaker of the "mighty chain" of Nature is man—in his presumptive ignorance destroying such creatures as rooks, owls, magpies, and moles—creating the evils he wishes to avert. What though the magpie sucks eggs and the rook eats worms? Hamlet logically says—"Your worm is your only emperor for diet; we fat all creatures else to fat us, and we fat ourselves for maggots. Your fat king and your lean beggar is but variable service; two dishes but to one table; that's the end. A man may fish with the worm that hath eat of a king, and eat of the fish that hath fed of that king, so a king may go a progress through the guts of a beggar."

The magpie is a great mimic—even since the days of Plutarch, for that old observant historian says—"A barber in Rome had one of these thievish rogues which imitated every noise it heard. When some trumpets were sounded over the shop it was mute and pensive for a day or two, and it was thought the sound had stunned the 'mag;' but he had been only in a brown study, for to the astonishment of all who came to get their beards dressed, it ended in a perfect imitation of all the notes, stops, repetitions, and changes of the trumpets." And recently, an old woman too often went to the public-house for a "hair of the dog that bit her," which was commented on by her neighbours saying, "That old woman is off to the dog again," which a tame magpie picked up; so, one day as she was passing on her way to the public-house, its master was astonished when it cried out, "Yah! yah! What! off to the dog again? Yah! yah!"

Many superstitious omens were associated with the magpie, as well as being a proverbial tale-bearer. The Spaniards have a proverb, "If you want anything proclaimed openly you have only to repeat it to women and magpies." An old rhyme says—

"Clash-pyet, clash-pyet,
  Sits on a tree,
Dings doon apples—
  Ane, twa, three;
Ane for the leddy,
  Ane for the laird,
And ane for the clash-pyet
  That sits in the yaird."

When at school in my time a tale-bearer was called a "tale-pyet." And as to superstitious omens, in his "Traditionary Sympathies of Rustic Ignorance," Wordsworth says they have

"A fearful apprehension from the owl
Or death-watch; and as readily rejoice
If auspicious magpies cross their way."

And in his "Nursery Rhyme," regarding the number seven, he says:—

"One's sorrow, two's mirth,
Three's a wedding, four's a birth;
Five, heaven; six, hell;
Seven, the devil's own sel'."

Nor was it a mere idle superstition, but a religious belief, in England. Mudie says—"If there was an *even* number and cheerily met, then happy times to the matrons, high hopes to the maids, health and long life to all the family. If near a churchyard, then good health and happiness to the whole parish. But woe to the house if a number were seen with an odd one sitting sulkily apart; and greater woe to a lover if he or she met such, or a party on their way to the altar, for neither lord of the manor, parson of the parish, nor bell, book, and candle, could cast out the evil spirit of the odd magpie." It was worse than a black pig crossing the door of a fisherman's hut on his way to sea, or a dead hare seen in his boat when at sea—all which nonsense, like the so-called "Fast-days," was at one time rigidly believed in, but which, instead of a mockery of fast-days, are now turned into true "holidays." So most of the evil attributed to this handsome bird is as void of truth as its superstitious omens. Macgillivray gives a long and pitiful story from his favourite authority, Mr Weir, of Boghead, who says:—"To all eggs they are destructive—even the smallest does not escape their minute search. To their rapacious appetite a great many *partridges and pheasants* and other birds fall an easy prey. Day after day I have seen them in pursuit of the same covey. They never appeared satisfied until the poor birds were extirpated" (as in the interest of game he wished the poor "mag" to be). "So impudent were they," he says, "that in early morning, within a few yards of my house, I have seen them watching the ducklings and chickens, and should any wander from their mother they were sure to be carried off." [I wonder how they do in Sweden and Norway?] He also says—"Mr Wark, farmer, of Hardhill, told me that his brother of Oldhall shot the leg off a magpie as she was carrying off a chicken from his house. She was not seen during winter and spring, but again in summer—lame though she was—she still carried on her *murderous* operations.' [Wonderful! I wonder why she was created? or if Mr Weir or Mr Wark ever fired a shot to "carry on" their own "murderous operations?"] "One day he saw her give chase to a duckling, which ran to the water for safety. So intent was she upon its destruction that she ventured too far in after it, and got so wet" (plucky lame "mag") "that before she was able to fly he knocked her down with a stick." [Exactly what he himself would have done to his wounded hare.] He then tells us what a boy herding his cattle told him. "He heard loud screams in a young plantation, and anxious to know the cause, he proceeded to the place from whence the noise came, and to his astonishment he saw a magpie standing upon the back of a hare, almost half grown, picking out its eye—the other having been torn out before his arrival." What a dreadful picture! I wonder Nature ever made such a bird! Why?—it leaves nothing for the corby or hoody, raven or hawk, or man himself, to do in the shape of "murderous operations."

Yet this is nothing to the horrible stories he tells of carrion crows with ewes and young lambs. But in all this there is no marvel ; it is the law of Nature—the strong preying on the weak ; and with man the law of the world—the "survival of the fittest"—as Darwin says—if every creature that preys upon weaker were to be condemned none would survive ; for, as Hamlet says to Polonius, "Give every man his deserts, who would 'scape whipping?" Or as a Greater Authority says—"He that is without sin cast the first stone." One day a little girl was deliberately killing one of those beautiful small red beetles called "lady-birds." On being asked why she killed it, she lisped out, "'Cause its a nasty thing." The gentleman who asked her, having a pocket lens, showed her the beauty of the spots on the wing cases of another "lady-bird" on the leaf of a rose, and told her it ate minute insects, *aphids*, which by the aid of the lens she saw it busy preying upon, and explained that it was a great friend to the gardener by eating these minute pests. The child opened her eyes with wonder, and said she "fought all beasties should be killed." Such is the instilled ignorance of the law of Nature and of life. I am sorry the same ignorance exists with older human beings than this intelligent young Miss. For while it is true that in carrying on the inexorable law of life the magpie preys upon the eggs and young of other birds, yet (to alter Burns) I may say—

> The ill "we partly may compute,
> But know not" of the good.

One morning, at 4 o'clock, on going through Prior Moor I heard a loud churring and chattering, as if a fierce struggle was going on in a high tree close by. On looking up I saw a magpie in the act of robbing a pair of missel thrushes of their young. But although the thrushes were boldly defending their nest from the fierce and persistent attacks of the magpie, I fear if I had not been there it would have succeeded. In this case I did no ill in saving the weak from the strong—even *against* the law of Nature. White of Selborne says he saw several magpies storming a missel-thrush's nest in his garden, and, although the thrushes fought resolutely, numbers, like well-drilled soldiers, prevailed, and the magpies "tore the nest to pieces, and swallowed the young alive." But it is very careful in protecting its own nest, and does not soon abandon it. Mr Weir says—

"A pair built for years within 40 yards of his stable, yet so shy was the male that he could never get a shot at him; but in a short time he shot three females while hatching the same eggs, as he would not desert the nest. He was struck with the rapidity he got another female. Sir William Baillie of Polkemmet saw six successive females (which sat upon the same eggs) shot from a nest *behind the church* of Mid-Calder." The more shame for man, the head of creation, to carry on such "murderous operations" near the church! Mr Weir says "their attachment to the same place is astonishing. In May he shot off the foot of a female as she was coming out of the nest. She forsook the nest, but hopped about the neighbourhood as best she could. Next year he shot a female coming out of the same nest, and was surprised to find he had shot his lame acquaintance while feeding her nearly ripe young ones." Certainly not to his credit, for it was he, not she, that was engaged in "*murderous operations*."

Though generally found in wooded districts, it is rare in the barren parts of Britain, as it likes to be near man. A writer on the North of Scotland saw magpies hopping round a gooseberry bush. The owners of the house told him, "as there were no trees near, they had for several years built in that bush, which (including the nest) was barricaded all round with briars and thorns, so roughly and strongly entwined with the bushes that, though the inside was soft and warm, a man could not get at their young without a hedge knife, the barrier being a foot thick. He said that frogs, mice, worms, or anything living, were plentifully brought to their young. One day one of the old birds attacked a large rat. Not being able to kill it, one of the young ones came out of the nest and helped, but it was not till the other old one came with a mouse and lent its aid that the rat was killed"—proof that the maligned magpie was doing its best to keep down rats and mice. The female was the most active. One day she seized a chicken, and flew to the house-top with it. But the hen flew after, and brought it safely down in her bill. As a curious mark of instinct, when carried off, the chicken cried loudly for help, but was quiet (as if it felt no pain) when its mother carried it down. They reared their young for years in the same nest, fortifying the bush afresh each spring with prickly sticks, which they hauled in together when too large for one. A pair for six years used the same nest till it grew so large that it was blown down. But though they cling to the old nest, they often partly build others before deciding in which to lay. I have often been annoyed climbing up to these unfinished nests in Stravithie Wood. Like the crows, they swallow from a maggot to a mouse. I knew one that swallowed living mice, head first, but needed time. They also live on carrion, eggs, young birds, grain, and fruit, doing more good than ill; for, as Pope truly says—

> "All nature is but art, unknown to thee;
> All chance, direction which thou canst not see:
> All discord, harmony not understood;
> All partial evil, universal good."

When flying, its long tail (20 inches) makes its wings seem short, and its fluttering flight to make little headway, like a yacht with too little sail. Yet their wings are of moderate length, and by quick beats they fly steadily and moderately fast, often chattering or chuckling as they fly. Unless the curlew or plover on the moor, no bird gives more timely warning of danger to other birds in wooded districts. If it sees a man with a gun and gives its peculiar chattering cry, the so-called sportsman's occupation, like Othello's in War, is gone—for that time at least. It is an intelligent chatterer, an accomplished trickster, with a good head, and perfect—if not elegant form—has the combination of a dozen birds, and for courage and dexterity possesses the talents of a feathered genius. Its black head and bill, breast, wings, tail, and legs, and dark brown iris, give it the look of a crow. But though it seems pied with pure black and white, on looking closer, the black has the metallic neck of the pigeon—an ever-varying iridescence of green, blue, and purple reflections, in every shade, as the light or the sun shines on the feathers, while the pure white of the wing coverts and under parts contrast beautifully with these rainbow hues. It is 18 inches long by 24 inches; females similar, but less. They sometimes go in small flocks. Coming home from Boarhills on January 10th, 1885, I saw thirty-three in a stubble field near the site of old Kinglassie Wood, three and a half miles from St Andrews. They flew up on some stunted trees in a hedgerow as I passed. In some fir woods in the district they are not rare. I know one in which they are so plentiful that it is called the "pyet wood." Like the rest of the genera they remain paired all year. The next allied species is the jay, in the well-named genus *Garrulous.* There are many other species distributed over the world, but as the magpie is the only species of the *Pica*, so the jay is the only species of the genus *Garrulous* in Britain, and the only two in Europe. The jays form a well-defined group among the *Corvidæ*, and form one of the five minor divisions of the family *Garrulina.* Those in warmer climates are distinguished by the rich blues of their plumage. The jay is allied to the crows on the one hand through the magpie, and to the thrushes on the other ; while the smaller jays resemble the tits, genus *Parus.*

THE JAY.

Garrulous Glendarius. (*Briss.*) *Corvus Glendarius.* (*Linn.*)

> "The birds are singing in the distant woods ;
> Over her own sweet voice the stockdove broods ;
> *The jay makes answer as the magpie chatters ;*
> And all the air is filled with pleasant noise of waters."
> —*Wordsworth.*

Linnæus in his larger divisions had the jay amongst the crows, and Wordsworth in saying "The jay makes answer as the magpie chatters," couples it with the magpie. Sometimes it is called the jay-piet. Though widely dispersed in Britain, it is rare about St Andrews, so I need not give a long parrot-like iteration of other people's observations. Although neither crow nor magpie have "sweet voices" (like the "stockdove"), the jay has the harshest ; yet its plumage induced Shakespeare to exclaim in "Catherine and Petruchio"—

> "What ! is the jay more precious than the lark
> Because its feathers are more beautiful ?
> Or is the adder better than the eel
> Because its painted skin contents the eye ?
> Oh no, good Kate ; neither art thou the worse
> For this poor furniture and mean array."
>
> . . . . . .
>
> "For 'tis the *mind that makes the body rich ;*
> And as the sun breaks through the darkest clouds,
> *So honour 'peareth in the meanest habit.*"

For, as he says in "As You Like It"—

> "Those that she [Nature] makes fair she scarce makes honest,
> And those she makes honest she makes very ill-favour'dly."

Although one of our most beautiful native birds, I know of no special good its rich attire does, unless as ornaments for ladies' bonnets. Nor am I inclined to ban it because the gamekeeper does, frankly admitting that "where ignorance is bliss 'tis folly to be wise." But though it occasionally sucks the eggs and kills the young of other birds, eats cherries and peas in gardens, its chief food is insects, larvæ, worms, acorns, beech-mast, nuts, grain, and fruits—not so omnivorous as the magpie—more confined to insects, larvæ, fruits, and pulse; is more arboreal in habits, more confined (like the bullfinch) to the dense thickets of large woods, where its nest is generally found; also in high coppice wood or hedges, and in the bough of a low scrubby tree—never on the tops of trees, like crow's or magpie's. It is composed of sticks, and lined with fine roots, like the magpie's, but not roofed; eggs, five or six—grey-blue, freckled over with darker brown, sometimes a ring at the larger end—easily known from any other bird's—$1\frac{1}{4}$ by $\frac{7}{8}$ $\frac{16}{}$. It is a restless, shy bird, and in the breeding season hides in the thickest parts of the wood, hence seldom seen. It flits like a shadow through the woods, warily keeping out of gunshot; has the opposite tendency of the magpie, rarely approaching the dwellings of man, unless in search of food for its young—a time when all creatures dare most to prolong their kind. In 1888 a nest with five eggs was got at St Fort, near where the heronry is, or rather was, for many of the high trees were blown down in 1893, when so much destruction was done to trees in Scotland. It was at the south-east end, not far from the railway station, that a singular contest between a pair of jays and a pair of partridges took place, the object being the partridges' eggs, near hatched—-a time when both species would exert their utmost—the jays for food to their young, the partridges in defence of theirs; but in spite of the desperate defence, the partridges were overcome, and their nest and eggs destroyed. Besides its harsh notes, it emits a low twitter in spring. Montagu says that like the American mocking-bird it can imitate the bleating of a lamb, the mewing of a cat, the note of a kite or buzzard, hooting of an owl, and the neighing of a horse so exactly that he was often deceived. It glides through the trees with great ease; in the open it flies direct like the magpie, with quick beats of its moderate-sized wings. The young remain with the old birds till next spring, like the magpies. The general colour is light red. There is a black moustachial band on each side of its mouth; on the forehead and crown the feathers are elongated and narrow, streaked with black, and form a crest, which it can erect or depress like a cockatoo; hind part of the head, back, and scapulars—light purple red;

rump, breast, and belly—white; lesser wing coverts—dark orange; greater wing coverts—barred with bright blue and black, stiff and glossy. This striking patch of ultramarine blue, including the primary coverts and alula, is the most conspicuous feature in its dress, from which it is called the "blue-winged jay." The quills are bluish-grey; tail black, shorter, and square at the end; legs, flesh colour; bill, umber; iris, bluish-white; legs and feet well adapted for perching; claws, arched and sharp; bill, slightly curved and pointed, made for offence or defence, shorter in proportion to the magpie's; but head is larger, and seems more so from its crest. The jay is 14½ in. by 23 in. in extent of wings. Some species in the Himalayas agree with our European type, but more gaudily dressed. The next allied species is the Cornish chough, called *Fregilus Graculus*, and like the two preceding is the only one of the genus in Britain. It also was included amongst the crows by Linnæus under the name of *Corvus Graculus.*

The Cornish Chough or Red-Legged Crow.

Fregilus Graculus. (*Cuv.*) *Corvus Graculus.* (*Linn.*)

> "As wild geese that the creeping fowler eye,
> Or *russet-pated choughs*—many in sort,
> Rising and cawing at the gun's report,
> Sever themselves, and madly sweep the sky."—*Shakespeare.*

This bird was separated from the crows by Cuvier. In size it is between the rook and jackdaw; is easily known by its long red bill and red legs. Provincially it is known as the Cornish daw, chalk daw, Cornwall kae, and red-legged crow. As it is only found by the sea-shore near high precipitous cliffs, and not seen about St Andrews, I need not give a long account of it. St Abb's Head is the nearest place where it is sparingly seen. It is chiefly found on the rocky cliffs of Cornwall, hence its name; also in Devonshire and Wales; abounds in the Isle of Man, and all the steep promontories of the Isles of Wight and Jersey; also in the west of Scotland, the Island of Barry, and the Outer Hebrides. Wherever there are high, precipitous cliffs around Britain it may be found. The best description of its dizzy haunts is given by Shakespeare in

"King Lear," when poor, eyeless Glo'ster, weary of life, and wanting death by leaping from the highest cliffs of Dover, asks his unknown son, Edgar, if he is near the place. Edgar replies—

> "Come on, sir; here's the place—stand still. How fearful
> And dizzy 'tis to cast one's eyes so low!
> *The crows and choughs that wing the midway air*
> Show scarce so gross as beetles. Half-way down
> Hangs one that gathers samphire—dreadful trade!
> Methinks he seems no bigger than his head;
> The fishermen that walk upon the beach
> Appear like mice; and yon tall anchoring bark
> Diminish'd to her cock; her cock a buoy,
> Almost too small for sight. The murmuring surge,
> That on the unnumber'd idle pebbles chafes,
> Cannot be heard so high; I'll look no more;
> Lest my brain turn, and the deficient sight
> Topple down headlong."

It makes its nest on the steepest cliffs, generally in clefts far in, so that you cannot reach or see it. It is, like the jackdaw's, of sticks, roots, and dry grass, lined with fine roots, grass, and a large quantity of wool and hair. The eggs, five, unlike those of the crows, are of a dull creamy white, speckled with brown, and purplish spots and blotches—more like the magpie's, but larger; $1\frac{1}{2}$ by $1\frac{1}{8}$—size of the rook's; it also feeds on worms, insects, seeds, fruit, carrion, fish, or what it can get. It prefers to alight on rocks, stones, or gravel, rather than on pasture or trees, although it sometimes builds on trees. Its long, arched, slender bill is so fine at the point as to pick out the smallest insect. It is strong at the base, much arched; the upper mandible, like an awl, extends over the lower—the tomia, or cutting edges of both, entire, forming a perfect instrument for the use intended by Nature. It is vermilion; legs and feet, coral red; claws, black, strong, and hooked. The whole plumage is black, as the pedlar rogue, Autolycus, sings in "The Winter's Tale"—

> "Cyprus, *black as e'er was crow!*"

Like the rook's, glossed with blue, green, and purple; iris, brown. It is gregarious, nesting in company; is 17 inches long by 34. Some foreign species in their formation of bill are affined to the birds of paradise.

The next genus, *Nucifraga*, in our limited British birds, is also confined to one species—the nutcracker.

THE NUTCRACKER.

Genus—NUCIFRAGA. *(Briss.)*

Nucifraga Caryocatactes. (Briss.) Corvus Caryocatactes. (Linn).

As this bird is a very rare straggler in Britain, I never saw it here. It is about the size of the jay, but has a much longer bill. The general plumage is reddish-brown, with oblong white spots; tail, black, with a broad white bar at the end. So if any of my readers see a rare bird in old woods, size of the jay, these may help to discern it. It is the connecting link between the crows and the woodpeckers, and is called the nut-cracking crow. It feeds on the seeds of different firs and nuts, which, like the nuthatch, it breaks by repeated strokes of its bill; lives in the great mountain forests of the north of Europe; is common in Switzerland; breeds in holes of trees, and lays five or six yellow-grey eggs.

As the *Corvidæ* form the third family of the *Conirostres*, or thick-billed perchers, and as there are no representatives of the fourth and fifth families found in Europe—hence not in Fife—I pass on to the fourth tribe of the order, *Insessores*, the *Scansores*, or climbers, which tribe (as its name implies) contains all birds noted for grasping and climbing, most of them having their toes in pairs—two in front and two behind, like the parrots, instead of three before and one behind, like the rest of the *Insessores*. The five families or divisions that compose the tribe are the *Psittacidæ*, *Picidæ*, *Certhiadæ*, *Cuculidæ*, and *Ramphustidæ*. We have representatives of only three in Britain, the *Picadæ*, *Certhiadæ*, and *Cuculidæ*. So I pass the first, and begin with the woodpeckers.

FAMILY II.

PICIDÆ.

Genus—PICUS. *(Linn.)*

The generic features are—bill as long as the head, straight, angular, and wedge-shaped at the point, exactly formed to dig out insects and larvæ from decaying trees ; the tongue long and extensile, with a tapering horny point, the upper surface and margin having reversed prickles for pulling them out, armed in addition with a glutinous substance constantly exuding from it —so minute is Nature in forming every organ for its use. The legs and toes are short, strong, exactly formed for climbing, the claws being also strong, much hooked, and very sharp for clinging to the bark ; and, to complete the perfect design for climbing trees and supporting the bird, the very tail is specially formed of ten strong elastic shafts as stiff as whalebone, with pointed ends for pressing against the bark, while the bird sits like a slater on a feathered bracket. If you put the under surface of its tail to your hand it takes force to make it slip back. Although all creatures are perfect for the purpose designed, none are more so than the woodpeckers, for the design is clearly seen in the mechanism. Their peculiar form and strength of bill, so well fitted for digging into trees ; their strong, sharp, hooded claws for clinging to the bark, safely anchored by their stiff, pointed tail pressed against it ; their singular formation of tongue, which can be extended and thrust into fissures far beyond the point of their long bill, the tip barbed with small filaments, like the teeth of a rake smeared with glue, to draw out the larvae or tiny insects—complete one of the most perfect structures of our universal mother Nature.

THE GREEN WOODPECKER.

Picus Viridus. (*Linn.*)

> "We heard not a sound,
> Save the woodpecker tapping the hollow beech tree."

This is our common species in Britain, but not very common in Fife—at least I have not often seen it near St Andrews. It is about the size of the jay, but more elongated, and has a longer bill. It may not be so rare as it seems, for all the woodpeckers, like the creeper, when they see or hear any person in the still wood, climb to the opposite side and hide behind the tree. Shy and retiring, its nature is, like humility, to keep out of sight, and, while clearing the trees of their insect parasites, practically,

> "Like humble Allen, with an awkward shame,
> Did good by stealth, and blushed to find it fame."

It is one of the gaudiest of our native birds. The general colour of the upper parts is yellowish-green; rump and tail coverts, yellow, tinged with green; wing-coverts also green, tinged with brown; crown of the head and neck, crimson; space between the bill and eyes and a mystacial band, black, with a crimson patch; lower parts, greenish-yellow, tinged with grey, faintly barred; quills, greyish-black; outer webs barred with yellowish-white; tail barred with dark green and brown; bill, 2 inches long, greyish-black; feet, bluish-grey; iris, white—female similar, without red on the cheek. The wings are long, broad, and rounded; tail short, which enables it to glide amongst trees with ease. It digs the hole for its nest in a decayed cavity of a beech or elm, about a foot down, round at the entrance, and only large enough to admit the bird, but wider inside. No materials are used, only small pieces of the rotten wood. It lays from five to seven pure white glossy eggs, 1¼ in. long, about the size of the jay's. It lays in April. The young often come out of the hole, and run along the branches before they fly. It lives chiefly on larvæ and insects, such as the *cosus ligniperda*, found in the bark, but also on ants and their eggs; is often seen on the ground, thrusting its bill into ant heaps, and thus frequents the ground more than the rest of the genus. It sometimes feeds on fruit in orchards, grain, and nuts, but its home is the woods. In the courting season it emits a singularly loud and harsh cry, like the laugh of the laughing gull, which, when suddenly heard in a lone wood, seems as if the discordant laughter was transferred from the sea to wander like a maniac in the wood, which, in his "Princess," Tennyson portrays—

> "And Lilia woke with *sudden-shrilling mirth*,
> *An echo like a ghostly woodpecker*
> Hid in the ruins;"

for which it is called the "yaffer" and "rain-pie," as it is heard most during rain. This laugh is like "plui, plui, plui," quickly repeated. In searching the trees it alights on the trunk instead of the branches, like other birds, and ascends in a vertical or spiral direction, rapidly tapping with its bill as it proceeds, at once detecting a hollow part. It seldom descends the tree, as its construction is against it. If it does, it moves backwards like a crab. It often taps with such rapidity that its head can hardly be seen moving. In a still wood the tapping can be heard half a mile away. Its strong wedge-like bill penetrates into the very nest of the larvæ, while its long, worm-shaped, extensile tongue extracts the smallest insects from the crevices of the rotten bark, as this singular instrument (in addition to the glutinous matter) is armed at the point with sharp, reflected bristles, like the barbs of an arrow, to prevent their escape. Like its congeners, it flies in jerks, is active and lively, and pops from tree to tree with great ease, for which (along with its gaudy green and yellow plumage) it was called the "popinjay" and its likeness selected for that old game. When flying to some distance its flight is undulating, like most small birds—the longest undulation before it alights. On August 26th, 1887, one was shot at Feddinch, three miles from here; and in March 1888 two were shot at Cambo, two at Gilston, and one at St Fort woods. It is 13½ inches long by 21 inches.

THE GREAT BLACK WOODPECKER.

Picus Martius. (*Linn.*)

Like the birds,

> "Trust in the Lord, but keep your powder dry."—*Cromwell.*

This bird is so very rare that its title to be called a British bird is questioned. I never saw it about St Andrews, so I need not give long extracts from other observers. It is about the size of the rook, and looks like one when flying. The whole plumage is black, except the crown of the head, which is bright arterial red ; iris, yellowish-white. It feeds on larvæ by digging in the bark of trees, on wasps, bees, and other insects. If insects fail, it feeds on seeds, nuts, and berries. It climbs with the same ease as the last—its bill, tongue, legs, claws, and tail the same. It also nestles in the holes of trees, and lays three or four pure white glossy eggs, 1⅜ in. long. It inhabits the north of Europe as far as Siberia, is less abundant in the great mountain forests of France and Germany. If there is no hole for its nest it makes one.

THE GREATER SPOTTED OR PIED WOODPECKER.

Picus Major. (*Linn.*)

> "Eat, drink, and enjoy the fruit of your labour,
> For it is the gift of God."—*Solomon.*

This bird is native, breeds in Britain, but rarer than the green species ; is oftenest seen in the extensive fir woods on the Spey and Braemar than other parts of Scotland ; but is more generally distributed in England, from the Tweed to the Channel—its structure and habits same as those of the green species ; but it rarely descends to the ground for food, and oftener makes the jarring sound which distinguishes woodpeckers, especially when disturbed from the nest. Like the little coletit, it will hardly quit its eggs or young. One sat on five eggs till the hole was enlarged by a chisel; she flew out by another hole in the tree. It makes no nest, but lays from one to two feet down in a decayed hole, finely smoothed with small pieces of the rotten wood. When disturbed off her nest the hen flies to a tree close by, and keeps "jarring" till her mate comes, just as a missel thrush "churrs" when angry. In England it is called the "woodpie," as it resembles the jaypie. The eggs, five (like the rest of the genus), are pure glossy white. Mr Doubleday of Epping says—"It is a rare bird here. I have only seen three of their nests—all in the horizontal branches or arms of oaks where a smaller branch had been broken off and the part decayed—the place carefully plastered up so as only to leave a hole large enough for the bird to enter. In one where the branch was hollow the nest was three feet from the opening. The eggs, five, were laid on the bare wood, which was decayed and soft." It breeds in the old wood on Tentsmuir, in Waterless and Kinaldy Woods. In the summers of 1887 and 1888 I saw a pair in the old wood on Tentsmuir, but failed to get their nest. In September 1868 five were shot in the district, and stuffed by Mr Walker, keeper of our museum; one near Crail, two from Kirkmay, one from Cambo, and one from Cameron. They were got that autumn as far north as Orkney. I saw one in the small wood at the Law Mill, 1½ mile from here, and as a proof they are not so rare as they seem to be, I saw one on one of the old ash trees in the Madras College area —no doubt a straggler, like the squirrel seen scrambling amongst the iron girders of the Forth Bridge on June 12th, 1889—how different from the picture of desolation drawn by Tennyson in his "Aylmer's Field"—

> "Then the great hall was wholly broken down,
> And the broad woodland parcell'd into farms;
> And where the two contrived their daughter's good
> Lies the hawk's cast, the mole has made his run;
> The hedgehog underneath the plantain bores;
> The rabbit fondles his own harmless face;
> The slow worm creeps; and the thin weasel there
> Follows the mouse, and all is open field."

The Cambo gamekeeper told me he had shot them often in his district, and at Prior Moor, three miles from here. In summer he heard one tapping the trees for several days, like striking with a hammer. He followed it up until he saw the bird and shot it. Some authors say the male merely taps for pastime or to call his mate. If so, this is a dangerous habit, as it proves it was a call to his destruction. When seen flitting about the woods, its name of "great spotted" or pied, is richly deserved, from the deep velvet black of the dress and the pure white of the spots. It is about the size of the missel thrush. The male has the crown of the head black, and a black band on the side of the neck, back of the head crimson, a broad band of white over the forehead, a white ring round the eye, and a broad white patch on the cheek, ear coverts, fore-neck, and breast also white, on back of the neck also a white patch—in fact, the bird is altogether a pied mingling of black and white from head to tail. For while the back and lesser wing-coverts are black, the scapulars and part of the adjoining wing-coverts are white, though the quills are black; each web is spotted with white, throat, breast and belly white. The tail, like the rest, is stiff and rounded to fit the trees, the four middle feathers black, the others more or less white, and spotted with black near the tip; vent, and under tail coverts, crimson. The bill, 1¼ inch long, bluish-black; iris purplish-red; legs and toes dark grey; claws black. The inside back toe is very short, with five scales; the second or inside front toe has nine; the third eleven; the fourth, directed backwards and outwards—by far the largest—has fifteen scutella, an arrangement seen at a glance as best fitted for climbing—all the species the same. Wings large, broad, and rounded, also perfect for the purpose intended by the wise fitter of means to ends, which we vaguely yet truly call Nature. The tail is also finely suited for a support, being of medium length and much rounded, having very strong shafts, the barbs extending beyond the end of them. Female similar, but wants the crimson patch on the back of the head. It is 10 inches long by 17.

THE LESSER SPOTTED OR STRIATED WOODPECKER.

Picus Minor. (*Linn*).

> "Here can I sit alone, unseen of any,
> And to the nightingale's complaining notes
> Tune my distresses and record my woes."—*Shakespeare.*

This little bird is about the size of the robin, has all the characteristics of the rest, feeds on insects and larvæ, lays five white eggs in the holes of trees on the bare wood in April and May. It is rare in Britain. I never saw it in the woods about St Andrews. But it may be flitting about the high branches without my seeing it, for Mr Gould in his "Illustrations of the Birds of Europe," says :—"In England it is far more abundant than is generally supposed; we have seldom sought for it in vain wherever large trees, particularly the elm, grow in sufficient numbers to invite its abode; its security from sight is to be attributed more to its habit of frequenting the topmost branches than to its rarity." It is found in England as far north as Derby, hence there is no reason why it may not be found in Scotland, but it is oftener heard than seen, for it has the singular power of making an extraordinary loud, churring noise for so small a bird. A close observer says :—"It is a frequent visitor to the woods near Shrewsbury, never failing in April to astonish him with its prodigiously loud churr, on the ranpikes of trees, which may be heard more than a mile. It resembles the snorting of a frightened horse, but louder and longer." So from this very *loud* statement my young friends should be at no loss to find it, when they hear in the woods a sound "louder and longer than the snorting of a frightened horse." The Rev. Mr Bree from the same district says :—"It is by no means rare here, but is more heard than seen. Its loud, rapid, vibratory noise—most extraordinarily loud for so small a bird—cannot fail to arrest the attention of the most unobservant ear." Though I have watched the bird within a few yards I cannot account for how the noise is produced. It resembles that made by the boring of a large auger through the hardest wood, hence it is called the "pump borer." But its usual note is a feeble squeak rapidly repeated six or eight times, "*ee, ee, ee, ee, ee*," louder and varied in Spring, which might pass for its love song. The forehead of this pretty little woodpecker is greyish-white, crown crimson, streak over the eye, occiput and nape of the neck black, cheeks and sides of the neck white, upper part of the back and lesser wing-coverts glossy black, middle of the back and scapulars white, barred with black, quills black, with white spots, rump and four centre tail feathers black, the rest fainter, till the outer feathers, which are white with a black spot near the tip. It is like the last, a mingling of black and white, bill and legs bluish-grey, iris reddish-brown. Female similar, without the crimson crown, which is white. It is 5½ by 10 in extent of wings. The next allied genus is that of *Yunx*, as named by Linnæus. So far as I know there are only three species in the world, only one in Europe. Hence the only one in Britain, *Yunx Torquilla.*

The Wryneck or Ant-Eater.

Yunx Torquilla. (*Linn*).

> "Though far-off birds hae feathers braw,
> The modest wryneck dings them a'."

This finely-pencilled, variegated bird forms the link between the woodpecker and the cuckoo, between genus *Picus* and *Cuculus.* It is classed with the woodpeckers owing to its long, projectible tongue, which it uses in getting insects. It also nestles in holes of trees, and lays from 7 to 10 pure white eggs on soft chips of the rotten wood like the woodpeckers. Twenty-two eggs have been taken out of a nest at different times rather than desert. They are $\frac{3}{4}$ $^{1\,6}$, about the size of the robin's. It is not such a forest bird as the woodpecker, prefers orchards, and selects holes in apple trees for its nest, and also roosts in holes of trees. Its feet and sharp claws for climbing are the same, but it wants their peculiar form of tail, which enables them to stick to the boles of trees, it being like the cuckoo's. It gets its name from the strange habit of twisting its neck with a slow undulating motion, like that of a snake—turning its head back and closing its eyes. In this motion the black streak on the dorsal line of the neck gives it a curious twisted appearance. When caught it never ceases this motion, even the young in the nest have the same habit, so that "wryneck" is most appropriate. It is also called the ant-hunter and snake-bird, from its habit of hissing like a snake when on its nest. It stretches up at full length, erects the feathers on its head, which it moves from side to side so like a snake that sometimes the nest-hunter is frightened, thinking it a snake instead of a bird. It is called the cuckoo's footman, as it arrives in Britain a few days before that bird. It is a summer migrant, generally diffused in England but rare in Scotland. I have seen it in Gilston Woods, and the gamekeeper told me he had shot it there. Like many rare birds it may be flitting unobserved about our woods in Fife, as it is a shy, modestly attired, yet delicately marked bird when inspected. It arrives in April. Its usual cry is like the *klee*, *klee*, *klee* of the kestrel. Its chief food is ants and their larvæ, but it also searches for insects on trees, especially firs. When feeding on ants its body is motionless, but its head is rapidly turned from side to side, while its bill removes the soil, and its long extensile tongue is thrust into the crevices to draw out the ants and their eggs on its horny, glutinous point, which can reach to a great length, owing to the extreme length of the horns of the hyoid bone, which curves over the head and reach to the base of the upper mandible. Two long salivary glands, under the tongue, open into the mouth by two ducts, and pour a copious viscid fluid, which covers the tongue and makes the ants and their larvæ or other small insects stick to it. Montagu says:—

> "We examined this bird minutely by taking a female from her nest and confining her in a cage for some days. A quantity of mould with emmets and their eggs were given to it, and it was curious to see the tongue darted forward and retracted with such velocity and with such unerring aim that it never returned without an ant or an egg adhering to it, not transfixed by the horny point as some imagined, but retained by a peculiar tenacious moisture by nature provided for that purpose. While it is feeding the body is motionless, the head only is turned to every side, and the motion of the tongue is so rapid that an ant's egg, which is of a light colour and more conspicuous than the tongue, seems moving towards the mouth by attraction, as a needle flies to a magnet. The bill is rarely used, except to remove the mould in order to get more readily at the insects; where the earth is hollow the tongue is thrust into all the cavities to rouse the ants; for this purpose the horny appendage is extremely serviceable as a guide to the tongue. We have seen the green woodpecker take its food in a similar way, and most likely every species of that genus does the same."

And as a good reason why it is not oftener seen, another observer, Mr Knapp, says:—

> "Shy and unusually timid, as if all its life were spent in retirement away from man, it remains through the day on some ditch bank or basks in the sun on the ant hills nearest its retreat, which it depopulates for food by its long glutinous tougue, which collects soil along with the insects, hence we find a much larger portion of grit in its stomach than other birds. When disturbed its flight is precipitate and awkward, soon hides itself, and were not its haunts and habits known, we should never think that this bustling fugitive was our shy Spring visitant, the wryneck."

I came upon one on the dry ditch bank surrounding the old fir wood on Tentsmuir, which flew exactly as described. As an encouragement to my young friends, Mr Hewitson in his "Eggs of British Birds," says:—

> "Although I have spent much of my time in the country, and always on the lookout for it, I have rarely seen it, and was the more surprised when, in going along a public road one day, I passed two seated side by side on the top of a stake fence."

But this is not singular, for, being about the size of many of our smaller birds, and of a plain colour, it is often passed unobserved. The general colour of this handsome bird is yellowish-grey, beautifully mottled with small brown specks and arrow-shaped black bars. A streak of dark brown runs down the nape of the neck to the rump; tail, long and rounded, grey, mottled with brown, and has four black bars, wings also barred with dark brown; throat pale yellow, with black bars; breast and belly white; bill pale brown, short and pointed; feet and claws brown; iris chestnut. Female similar. Length, 7 inches by 11.

Family III.

Certhiadæ (*Vig*).

The members of this family are allied to the last in their habits of climbing, but separated by their form of feet, which, instead of having two toes before and two behind, have them the usual way, three before and one behind; but they are so constructed that they can creep down the trunk of a tree as well as up, their short tarsi, length of toes, especially the hind one, and very sharp curved claws being specially formed to do so. Hence some of them can dispense with the stiff feathers of the tail. Their chief characteristic is long, slender toes and syndactylous feet, that is, having the outward and middle toes united as far as the second joint by a web. The three front toes are pretty close together, and like the hind one are armed with strong sharp claws specially formed to enable them to climb up or down trees, for Nature is no bungling mechanist when she has a purpose to serve. The mobility of their toes is very singular; being on the universal joint principle, they can turn the hind toe outwards until it forms a right angle to the three front ones, and can twist the others so as to reverse the position, enabling them to run up or down or around trees with perfect ease and wonderful rapidity.

Genus—SITTA. *(Linn.)*

NUTHATCH.

Sitta Europœa. (*Linn.*)

> "Take warning! he that will not sing
> While yon sun prospers in the blue,
> Shall sing for want ere leaves are new."—*Tennyson.*

There is also only one European, hence only one British species of this genus. It is indigenous, and chiefly found south of the Tweed, but has not, to my knowledge, been seen in Fife. It is a beautiful, lively, little bird the size of the lesser woodpecker, which it resembles in its white cheeks and black streak behind the eye. Besides insects it feeds on the kernels of nuts and seeds, and gets its name from the singular way it breaks the nut, which it fixes in a crevice of a tree or a post, and hammers away with its strong bill until it breaks the shell, pivoting itself on its short legs, and jerking its body forward like a man breaking a stone. When it finds a suitable crevice it returns to it as thrushes do with snails to a favourite stone to break the shells. The nut often falls, but before it reaches the ground the nuthatch catches and replaces it in the crevice. It places itself above the nut, and with great force and rapidity strikes the edge with its wedge-shaped bill till it splits it open; sometimes a peck of shells may be found under the spot. White of Selborne says:—"My countrymen talk of a bird that makes a clatter with its bill against a bough or some old pales, calling it a jarbird. I got one shot in the act—it was the *Sitta Europæa.* The noise may be heard a furlong or more." The tapping of the green woodpecker is heard farther. It is seldom seen in the open fields unless in search of haws. It breeds in April, and, according to Montagu, selects the old nesting hole of a woodpecker. "This hole," he says, "is first contracted by a plaster of clay, leaving only an opening sufficient for itself to pass in and out. The nest is made of dead leaves, mostly oak, heaped together without order, eggs six or seven, white, spotted with rust-colour, so like those of the greater tit as to defy difference. If the clay is destroyed it is speedily replaced to keep out larger birds. So secure does it feel in its citadel that, like the tit, nothing will make it leave its eggs. It defends them to the last, strikes the invader with bill and wings, makes a hissing noise, and will allow itself to be caught rather than quit. In form of bill and habits it resembles the tit. Its tongue, unlike the last, is short, not extensile. Although there is only one species in Europe, there are several in America, all small, from the size of the gold-crested wren; none much larger than our nuthatch. Like the tit all its actions are abrupt, it climbs, perches, and flits with jerks, often hangs back downwards like them; while, like creepers and woodpeckers, it climbs trees in search of insects, but, without using its tail to support it, descends the same way, head first; is the only bird we have which habitually does so, its very long, much-curved, sharp claws enabling it to do so. It frequents the scattered trees of parks and old enclosures rather than thick fir woods, and seeks the lee-side, away from wind. It has no song, but in spring emits a soft flute-like note. In captivity it is fed on hempseed, grain, or nuts, which it cracks and splits, and is a very amusing pet—only the cage must be wire, as it destroys woodwork. Its general colour is bluish-grey; throat and cheeks, white; a black band behind the eye; lower parts, reddish-yellow; sides, dusky-red; bill, greyish-blue; feet, grey; iris, brown; wings, long; tail, short and broad—not stiff like the woodpecker and creeper. It is 5¾ inches long by 10½; female similar.

Genus—CERTHIA, CREEPER.

The Common Tree Creeper.

Certhia Familiaris. (*Linn.*)

> " She forward thrusts her threatening neck,
> Its feathers ruffling in her wrath,
> Bold with maternal fear."—*Southey.*

Like the last there is only one European species. It is common, but not *familiar*, like the robin or sparrow, for it is shy and retiring. Except the gold-crested wren it is our smallest British bird, weighing hardly two drachms. Its long tail and wings make it seem larger. It is well-named the tree-creeper, for it creeps up the trunks and along the branches with the greatest ease in search of insects. When thus engaged it is never at rest, will allow you to come within a few feet quite heedless, unless it suspects harm; then it merely creeps round to the other side or flies to the root of the next tree, for it always begins at the foot and creeps round it, or zig-zag upwards, pressing its long, stiff, rounded tail to the tree, like the woodpecker. It searches systematically, alights at the foot, clings to the bark, presses its tail against it, and at once begins its indefatigable search of every bit of the trunk, winding round and poking its long, sharp-pointed bill into every crevice likely to shelter the smallest insect or larvæ, jerking itself forward by short leaps, always in haste, and expressing its anxiety by continually emitting its low, mouse-like cheep—very like the gold crest's. Having searched the trunk, when it comes to a horizontal branch it as carefully winds round and searches it, often clinging back downwards. Having crept as far as it wants, it again flies to the trunk where it left off, and repeats the spiral ascent till lost sight of in the higher branches, from which it flies down to the foot of the next tree and repeats its tireless worship of the first law of life. You may watch it for hours, but, like the swallow on wing, it seems never to tire—wonderful Nature!—creeping or flying all is the same, perfection everywhere; unless in man, who makes creeds and laws of his own, would be his own Creator, and, like Moses, would be "a God to Pharaoh." Would make his own *flying machine!* Alas! alas! poor imitation of the flight of a bird, far less the flight of the mythical angel! It is found in all our hardwood dens and woods. I have seen several pairs in Bonnytown Den at one time. A permanent resident, nowhere numerous, seldom seen away from woods, and never in flocks, although I have seen it with gold crests and tits. It pairs in April, breeds in May, and lays from six to nine white eggs, speckled with rusty-brown like those of the blue tit, which shows their affinity, for tits also creep and climb. On June 24th, 1878, I got a nest with eggs, just hatching, in an old rustic, heather-clad summer-house at Gilston. It was two feet from the ground. I went back on July 1st; I peered in and saw her closely sitting. I could have caught her, as the only opening was on the outside of the house, and so small that a mouse could hardly have crept in; but by taking off the inside branches I could have taken her out. I had to tap to make her fly out. There were six raw young ones. I lay and watched till she came back, for, though scared, I knew maternity would conquer fear. In ten minutes she returned, and alighted against the trunk of a tree four yards off; after creeping round it searching for insects she darted into her nest. I went back on the 19th, but the young were flown. Wishing to inspect the nest I tore off a portion of the inside branches and carefully examined it. It was composed of moss, fine roots, and grass, with a few feathers, chiefly wood pigeon's, and some wool; the entrance was only $\frac{7}{8}$ of an inch between the post and a stone. The creeper is slender, for, though the body and neck are short, the wings and tail are long, the plumage soft and elongated, with loose barbs and slender filaments to give an airy lightness while searching for its tiny prey, the long deflective tail being exactly formed to stick to the tree. The long-pointed bill and tongue are well adapted to pick them out, but, though long, the tongue is not extensile, the longer and more slender bill making up for that want; the shorter, stronger bill of the *Picidœ* being more used to tap and pierce. The bill, long as the head; legs, short; the long, mobile toes (three before and one behind), with their very long, sharp claws perfect the formation of this tiny bird for the purpose designed —as if Nature said to man, "Here is a creature I have made with special care for creeping up and clinging to trees, for picking out wee insects and their pupæ from every nook and cranny in their bark, so don't molest it, because it shows no distrust when rapt in my work." For, as Coleridge says—

"The dear God who loveth us
He made them, great and small."

Aye! so *very* small that myriads of species cannot be seen by the naked eye—(as great worlds wheeling far away in the immensity of space cannot be seen with the aid of the most powerful telescope)—while with the help of the microscope thousands of creatures may be seen in a drop of water, a consumptive lung, or in an inch of our common mother—dust. In fulfilling its mission the little creeper knows not fear—is more like a mouse than a bird—except in the pairing season, when they gambol and scud along the trunks and branches, chasing each other like feathered mice. Woodpeckers break the bark for their food, tits and *reguli* search the twigs and leaves, but the creeper searches and probes the smallest chink—as the little jenny wren searches amongst stones and shrubs—every creature faithfully fulfilling the object of its creation—the science of life

—the small feeding on the smaller. Like Shakespeare's villain, there is no music in the creeper, unless its simple cheep. It creeps with jerky fits and starts, its flight is short and rapid, from the top of one tree to the bottom of another. When farther, it flies with quick undulations, pretty high. In winter it shifts from place to place, along with tits and goldcrests, as most birds like company at this bleak time of year; but often by itself, and may be seen in gardens. The general colour of this queer little bird is brown on the upper parts, streaked with white; under parts, glistening white; head, dark brown; neck and back, paler; each feather having a whitish streak in the centre; rump, yellowish-red; tail, grey, tinged with brown, composed of 12 long, stiff, accuminated feathers; wings, crossed by a bar of yellow; a white streak runs over the eyes; bill, legs, and toes brown; iris, hazel. It is 5½ long by 8; female similar, but less. The next allied genus is that of *Troglodytes*, represented also by only one species in Europe—the little jenny wren. It was placed in the Sylviadæ by Linnæus, but separated by Cuvier.

Genus—TROGLODYTES. *(Linn.)*

COMMON WREN.

Troglodytes Europœus. (*Cuv.*)

> "The wren—
> Not shunning man's abode, though shy—
> Almost as thought itself, of human ken—
> To the bleak winds she sometimes gives
> A slender, unexpected strain—
> Proof that the hermitess still lives."—*Wordsworth.*

Although there is only one species in Europe there are several in America, all having the same habits. *Troglodyte* is a Greek word, meaning dwelling in subterranean caves, applied by the ancients to certain human tribes living in caves far up the Nile; though it does not apply to all the American species it does to ours, for, if you notice, it always pops out of sight—amongst stones or shrubs. It also makes a cave-like nest. Even Dr Macgillivray, who sneered at the "extinct systems" of our old authors, "prefers retaining the specific name *Troglodytes*, bestowed by Linnæus, to converting it into a generic name, because the hiding in caves or holes by the ancient Troglodytæ is not common to all wrens, although it is to this species in a remarkable degree." Its flight is low, limited to short distances, and flits with rapid beats of its short wings. It is always dodging amongst the roots of shrubs and bushes to hide itself, depending less on flight than the facility to creep (like a mouse) out of sight into holes or crevices. I never saw this more exemplified than on March 29th, 1894. A pair had been flitting about the Kinness Burn at Abbey Park, near an old whin bush. I was sorry to see one of them, unable to fly, trying to hide itself, until it came to a tuft of long grass at the burnside, which it wriggled underneath, and lay panting in its fancied retreat—it could go no further. (It had been shot by a callous loafer when looking for a place to build, for, two days after, the male began to build a nest himself in our shed at the burnside.) I was vexed, and turned away. Although shy, it is very sprightly, and when it flits about, cocking its little tail straight up, jerking its head, it seems the essence of pertness. Next to the robin, we have no bird better known than the little jenny wren, the pair being called in old legends "God's own cock and hen." It is found everywhere—from Land's End to John o' Groat's, in the Orkneys and Shetland. For such a wee bird it has a loud and sweetly varied song, which, like the robin's, is often heard in winter; these being almost the only two birds which cheer us in winter, which philosophic Wordsworth notes by coupling them together:—

> "From behind the roof
> Rose the slim ash and massy sycamore,
> Blending their diverse foliage with the green
> Of ivy, flourishing and thick, that clasped
> The huge round chimneys, harbour of delight
> *For wren and redbreast—where they sit and sing*
> *Their slender ditties when the trees are bare.*"

Burns' fine song, "Oh, wert thou in the cauld blast" was also founded on the old rant:—

> "The robin came to the wren's nest,
> And keekit in, and keekit in;
> Oh, weel's me on your auld pow,
> Wad ye be in, wad ye be in."

And even in nursery rhymes they are quaintly coupled together, for instance:—

> "The robin and the wren
> Made their parritch in a pan,
> But 'tween the kitchen and the ha',
> Cock robin let the parritch fa'."

It was long a popular belief that the wren was the female robin, hence jenny wren and cock robin; and we all know the nursery story of cock robin being found dead in the wood, and Jenny lovingly covering his body with leaves, as the two are represented to have jointly covered the "babes in the wood." Except the kinglets and the creeper, the wren is our smallest native bird. In "Macbeth" Shakespeare makes Lady Macduff say—

> "The poor wren,
> *The most diminutive of birds*, will fight,
> Her young ones in the nest, against the owl."

And to show what apt dramatic use he makes of the little wren, when Imogen, in the fine play of "Cymbeline," is sorely tried, she exclaims—

> "I tremble still with fear; but if there be
> Yet left in heaven *as small a drop of pity*
> *As a wren's eye*, fear'd gods, a part of it."

And in "Twelfth Night," when Maria enters and tells Sir Toby Belch that Malvolio is rigged out in yellow stockings like a fool, all he says is, "Look where the youngest wren of nine comes," thus identifying the number of young wrens with the generality of human families. It is often found amongst rocks as well as shrubs—at least I often see it amongst the rocks and whins at Kinkell. It attracts attention by its pert hopping out and into every hole it comes across, jerking its body, erecting its tail, and emitting its loud churring noise—seems ever in motion, always happy. Even amongst snow, when other birds are dowie and sad, it will suddenly pop from its hiding-place and often

> "To the bleak winds gives
> A slender, unexpected strain"—

a fine allusion to the little "cave seeker," when suddenly emerging from its hiding-place, bursting into a short but loud and cheery song, as if to show the "*hermitess still lives.*" Its usual note is *chit*, *chit*. It makes its nest early in April—one of the few domed nests our native birds make—perfect, and large for the size of the bird. I have got it under a bank, amongst ivy, brambles, whins, and on the "maiden-stane" at Kinkell. It builds anywhere, lays from seven to ten whitish eggs, speckled with brown; but I never get a nest with more than nine. Macgillivray says—"A weaver in Bathgate saw one with seventeen eggs, and that James Bailie, Esq., counted sixteen eggs in one. He went back and found them al. hatched." It adapts the colour of material to the colour of the place. If on a bank, tree, or rock, grey lichens, withered leaves, or grass are selected. If amongst ivy, green moss is used to escape detection. I noticed this on two special occasions. On May 8th, 1856, I got one with eight eggs three feet up amongst ivy close to Abbey Park Garden door. Going in with the gardener, the bird popped out. I looked, but could see nothing. Looking closer, I observed the bunch of green moss amongst the ivy, so like the situation that had she not popped out I would never have seen in. Not far from the ivy, close to the root of a hedge, in Dr Boyd's Glebe, when looking for a willow wren's nest I discovered one covered with withered leaves so like those that lay under the hedge that, had I not seen the bird go in, I could not have got it. It is six inches diameter, sometimes oblong, seven by five, composed of dry leaves, moss, and grass, mixed with fine roots and twigs, interwoven with fibres and some hairs, smooth inside as if felted; inside, three inches diameter, thickly lined with feathers. The entrance, nearest the top, is only $1\frac{3}{4}$ inch by $1\frac{1}{8}$ inch high; the sill neatly made of small twigs, interwoven into a firm pediment. The most singular nest I ever saw was one interwoven in a small coil of sash-line, hung five feet up on a post in our big woodshed, under the engine shaft; begun by the male wren this year on April 1st, 1894, after the loafer shot his little mate. The coil was 12 inches by 6 inches, hanging loose on a wooden pin. It remained unfinished for some weeks, but on getting another bride it was finished and nine eggs laid in it, which were hatched. The young ones flew on June 7th. It was most ingeniously constructed; some of the grass stalks were 22 inches long, interlaced between the coils of the sash-line, and a knot used for the sill. There were not so many feathers inside, but they were large, and coiled round, as the post formed the back of the nest. One before me is $5\frac{3}{4}$ long by 2—the wren being only four inches. So they must have had trouble, and showed sense in the construction of their cradle. They were not afraid. The male pertly sang within two yards of my son busy working in the shed. They have two broods in the year; being prolific may account for their lives being said to be only three years. It is pert but sensitive. I know an instance, after their eggs were harried thrice, the pair were found dead in their nest. The man told me he first took five eggs from the nest. A fortnight after, other seven; in another fortnight he took seven more; but on the next visit instead of eggs he found both birds dead in the nest—"as if they had died," he said, "of a broken heart." The more shame to be the cause of it. It was by the side of the old quarry at Priormuir. I have often got moss-domed nests amongst whins and under roots of trees in the woods without feathers inside, and though I revisited them I never found them with eggs or young, so I came to the conclusion they were built by the male, as if he, too, wished to be a hermit and a true *Troglodytæ*. Others have also observed these "cock-nests." Macgillivray says—"Mr Wood tells that the wren often builds a dwelling in autumn and lodges in it in cold nights;" he "found one in an old thrush's nest in a laurel; and that "frequently the nests in which one or two broods had been reared in summer are tenanted every night in winter." *Lowden's Magazine* lately said, "During incubation the male constructs as many as half a dozen nests near the true nest, none of which are lined with feathers, and whilst the true nest is artfully concealed, as to be seldom found, these are very often seen." Mr Weir also says during a severe winter all the cock-nests he knew were occupied as places of refuge by the wrens and their families. So here, my young friends, is fine scope for investigation. When rambling in the woods try and find moss-domed nests without feathers inside. Watch and see how they are used in winter, and study a lesson on ornithology direct from the book of Nature. Selby, too, says—"In very severe winters numbers perish from the want of their proper food. They retire for shelter into holes of walls and the eaves of corn and hay stacks; and I have frequently found several dead together in old nests which they had entered for protection and warmth." In very severe winters several may take shelter together in an old nest or hole, and roost in byres or stables for heat, though I never found them. But I fear if all our insectivorous fellow-sojourners through life were to die in severe winters from the "want of proper food," many besides the little Jenny wren would be found in holes huddled together, waiting for the last undertaker—death. No wonder Burns asks in his "Winter's Night"—

"Ilk happing bird—wee helpless thing—
That in the merry months o' spring
Delighted me to hear thee sing—
What comes o' thee?
Whaur wilt thou cower thy chittering wing,
And close thy e'e?"

Small as the wren is, I have no doubt it can rough out a severe winter better than most of our native birds, for Scotland is the mother of hardihood and self-reliance. And Joseph Cottle says :—

> " As Nature's wants are few,
> In this the art of living lies,
> To take no more than will suffice,
> And make that little do."

When the "Napoleon" was lost with all hands on Oct. 23rd, 1864, I remember seeing a wee wren scooging behind the trunk of an old beech tree, holding on like grim death, when the foam was driven over the city by the N.E. gale, and the snow-clad blast was howling around it. Although its usual habit is to hide, it shows its affinity to the creepers by creeping sideways up trees and stones in search of food. It is a general favourite, for it always seems so cheery, cocking up its short tail and jerking its body, expressing its happiness by its usual *chit*, *chit*. On June 20th, 1889, I saw a whole brood and their parents thus flitting on the fern-clad braes of Kinkell; but, owing to their short rounded wings and low flight, they are easily run down when they leave their friendly underwood or stones; and the hunting of them on St Stephen's Day is an old custom in the south of Ireland. Its general colour is pale chestnut, with transverse bars of a darker shade on the head and upper parts ; the quills barred with darker brown ; over the eyes is a pale brownish-white streak ; under parts, pale brown ; tail, also brown, and barred, always cocked up, gives the little "jenny wren" its own unique, cheerful appearance. The bill is pretty long and pointed, to suit its mode of life ; iris, and long hooked claws, also brown. Although slightly heavier, it is not much larger than the gold-crested wren, which is $3\frac{3}{4}$ by $6\frac{1}{2}$, while this wren is 4 by $6\frac{1}{2}$ inches, only $\frac{1}{4}$ of an inch longer. As a striking instance of birds hiding their nests by making them like the place ; when the "Francis," from Sweden (laden with pine pulp for paper), was wrecked in 1891, and her cargo carted to Abbey Park, a chaffinch had her nest close by, which was harried. She built another, dotted over with the greyish-white pulp, so like the tree that it escaped detection, and the young flew. The next allied genus is that of *Upupa or Hoopoe*, as named by Linnæus.

Genus—HOOPOE.

Upupa Epops. (Linn).

"How stately nods the hoopoe's crest,
The bird—a stranger at the best."

This beautiful bird is about the size of the missel thrush. It has a long crest of two rows of feathers, which it can erect at will. Its plumage is a fine mingling of white, buff, and black. It gets its name from its low, soft note of *hoop*, *hoop*, oft repeated, others say from its crest, *huppe*. It is an African bird, found in Europe as a summer visitant. It sometimes breeds in Britain, but very rarely. I never saw it about St Andrews. It makes its nest in holes of trees, of dry grass, lined with feathers; eggs, four or five, greyish-white, spotted with brown. The crest feathers are 2 inches long, light red, tipped with black; the bill, 2¼ inches long, and slender; the female's crest is shorter; the head and neck, forepart of the back, and wing coverts, purplish-red; middle of the back and scapulars, black, with a broad band of pale red; rump and upper tail coverts, white. There are several species of this beautiful genus, but this is the only one found in Britain—sometimes as far north as Caithness. Therefore it may be found in Fife, although I have not seen it, so here is another rare summer visitor to search for in the woods. For its short legs, sharp hooked claws, and long bill tell us it belongs to the climbing family. The next genus is that of *Cuculus*, the cuckoo, in

Family IV.

THE CULCULIDÆ.

This is the fourth family of the *Scansorial*, or creeping tribe of birds, restricted in Britain to one species, the common cuckoo, in genus *Cuculus*—the name given by Linnæus. Early authors included several birds so far allied, but differing essentially. Until now the genus is confined to the one species in Britain, but several others are found in the warmer parts of Europe. They construct no nest, but place their eggs in those of other birds. They are insectivorous and solitary.

The Common Cuckoo.

Cuculus Canorus. (Linn.)

I.
"When daisies pied and violets blue,
And lady-smocks all silver white—
And cuckoo-buds of yellow hue—
Do paint the meadows with delight:
The cuckoo then on every tree
Mocks married men, for this sings he:—
Cuckoo—
Cuckoo, cuckoo—O, word of fear,
Unpleasiug to a married ear."

II.
" When shepherds pipe on oaten straws,
And merry larks are ploughmen's clocks,
When turtles tread, and rooks and daws,
And maidens bleach their summer smocks,
The cuckoo then on every tree
Mocks married men, for thus sings he:—
Cuckoo—
Cuckoo, cuckoo—O, word of fear,
Unpleasing to a married ear."—"*Love's Labour Lost.*"

The cuckoo is a summer migrant, but stays the shortest time of all our summer visitants, hence possibly the necessity of it leaving its eggs and young to the care of foster parents. It arrives in the first of April ("all fool's day"), and leaves us early in July, hence called the "gowk," in reference to a "gowk's errand" on the first of April; but I have heard it here in the middle of March. In 1883 it was heard in Fife on March 8th, at Markinch on February 3rd, and in Balgonie woods, near Markinch, on March 27th, 1884. Its usual food is hairy caterpillars, such as *bombyx caja*, but it lives on all kinds of insects, and, like the goatsucker, it sometimes hawks for moths in the twilight, for which its wide mouth is suited. The crop of one, opened for the purpose, contained large *phalænæ*, moths of several kinds, and their eggs, small *scarabs*, spiders, and dragon flies, maggots, and seeds of such fruits as gooseberries, currants, and cranberries. Its feet are the same as those of the woodpeckers and wryneck—two before and two behind—the tarsi very short. Its peculiar two-noted song of cuc–koo is welcomed as the harbinger of summer, and carries with it a feeling of pleasure to boy and man alike, as "one touch of Nature makes the whole world kin." Therefore :—

"Hail ! beauteous stranger of the grove,
  Attendant on the Spring,
Now heaven repairs thy rural seat,
  And woods thy welcome ring.

Soon as the daisy decks the green,
  Thy certain voice we hear.
Hast thou a star to guide thy path,
  Or mark the rolling year ?

Delightful visitant, with thee
  I hail the time of flowers,
When heaven is filled with music sweet
  Of birds among the bowers.

The schoolboy, wandering in the woods
  To pull the flowers so gay,
Starts, thy curious voice to hear,
  And imitates thy lay."

Named after its cry—like cheap American clocks—for, observant and subservient trade has enlisted its plaintive cry of *cuc-koo* into its useful, if somewhat *greedy* service ; and the singular habit of inserting its eggs into the nests of other birds —in breach of connubial ties—has created the offensive matrimonial word, cuckold. Be that as it may, it is found broadcast over Britain. I have heard it in every wooded district about St Andrews. Its favourite resorts are parks and plantations bordering pasture, but even on rocky hills, bleak moors, or ferny braes its pleasing note is heard. Wordsworth, in his description of the lowly vale near Blea Tarn—that "quiet treeless nook"—exclaims—

"Where the small birds find in Spring no thicket
To shroud them ; only from the neighbouring vales,
The cuckoo, straggling up to the hill tops,
Showeth faint tidings of some gladder place."

And Tennyson declares—

"To left and right
The cuckoo told his name to all the hills."

They abound so much in Malvern Hills, in England, as to make the whole circuit resound with their note, which may have induced Shakespeare to make Portia say in "The Merchant of Venice"—

"He knows me, as the blind man knows the cuckoo—
By the bad voice."

Or, as he says in "Henry IV."—

"So, when he had occasion to be seen,
He was but as the cuckoo is in June—
Heard, not regarded"—

being so common. They are not so plentiful in Fife nor anywhere in Scotland; as many in Inverness and Ross shires as in the Lothians. Shakespeare's allusions to the cuckoo and to cuckolds are numerous, as if he had a spite against the bird and a doubt of woman. For instance in "All's Well that Ends Well" he makes the clown say to the Countess—

Clown—"I am out of friends, madam, and I hope to have
Friends for my wife's sake.
Countess—Such friends are thine enemies, knave.
Clown—You are shallow, madam. E'en great friends;
For the knaves come to do that for me which I am
A-weary of. He that ears my land spares my team, and
Gives me leave to inn the crop. If I be his cuckold, he's my drudge.
He that comforts my wife is the cherisher of my life and blood;
He that loves my flesh and blood is my friend;
Ergo, he that kisses my wife is my friend.
If men could be contented to be what they are
There were no fear in marriage; for young Charbon,
The Puritan, and old Poysam, the Papist, howsome'er
Their hearts are severed in religion, their heads are both one.
They may joll horns together like any deer i' the herd."

"For I the ballad will repeat,
Which men full true shall find:
Your marriage comes by destiny,
Your cuckoo sings by kind."

I have seen and heard it in the old fir park on Tentsmuir, where it arrives at the same time as the wheatear. It prefers moorland, where the meadow pipit (the tit-lark) abounds, into the nest of which it chiefly puts its eggs. Dr Jenner (the discoverer of vaccination) was the first—in 1788—to tell that the young cuckoo ejected the other young birds, and became the sole possessor of the nest. He graphically tells us that—

"Having found a hedge sparrow's nest containing a cuckoo's egg and three of the hedge-sparrow's, next day the young cuckoo and one hedge-sparrow were hatched. The other two eggs had disappeared. I *saw* the young cuckoo—though so lately hatched—in the act of turning out the young hedge-sparrows. The little creature, with the help of its rump and wings, contrived to get the bird upon its back, and making a lodgment for its burden by elevating its elbows, clambered backwards with it up the side of the nest till it reached the top, where, resting for a moment, it threw off its load with a jerk. It remained for a short time, feeling with the extremities of its wings to be convinced that the business was done, and then dropped into the nest again. With the extremities of its wings I often saw it examine the egg and nestling before it began. Their nice sensibilities compensated for the want of sight, which as yet it was destitute of. I afterwards put in an egg, and this, by a similar process, was conveyed to the edge of the nest and thrown out. These experiments I repeated several times, in different nests, and have always found the young cuckoo act in the same manner."

Its shape is adapted for the purpose, its back is broad, with a depression in the middle, which is not filled up until twelve days old. When two cuckoo's eggs are placed in the same nest a severe contest takes place until the weaker is ejected—a striking instance of Darwin's theory, "survival of the fittest." In the "Manchester Memoirs," vol. IV., Mr Blackwell says:—

"On June 30th I got a young cuckoo in a titlark's nest on the 28th—*seven days after the old cuckoos had quitted the neighbourhood;* it turned both young birds and eggs out of its nest in which I placed them for the purpose, and gave me the opportunity of witnessing the process so minutely and accurately described by Dr Jenner. I observed that this bird, though so young, threw itself backwards with much force when anything touched it unexpectedly."

Montagu also says:—

"I first saw the young cuckoo a few days old in the hedge-sparrow's nest; the sparrow had four eggs, when the cuckoo dropped a fifth; the cuckoo was hatched in the morning, and by evening all the young sparrows were ejected. At five days' old I took it to my house. It frequently threw out a young swallow (put in for experiment) for four or five days after. It insinuated itself under the swallow, and, with its rump, forced it out of the nest with a jerk. Sometimes it failed after a struggle, for the swallow was nearly full feathered, but, after a short rest renewed its efforts, and was restless till it succeeded. After the fifth day it suffered the swallow to remain unmolested."

Mr Weir, another close observer, says:—

"Upon the top of Monyfoot Hill, Linlithgowshire, I knew a titlark's nest under a bush of heath with five eggs—one of which was a cuckoo's. A few days after they were hatched the young titlarks were lying dead on the ground, turned out by the intruder, the sole occupant of the nest. One day I saw the titlarks flying in with worms and flies in their bills feeding it with great care. When I went near the nest they hovered about me, uttering their cry of alarm. They always flew off, and returned together with food. When three weeks old it grew bold, and put itself in an attitude of defence. I took it home and kept it five months. It became tame and familiar, though at times fierce and pugnacious; when teased it came out of its cage and fought with my finger, sparring and striking with its wings like a game cock. Its voracity was insatiable. For some weeks after being fully fledged it is fed by its foster-parents. If any one approaches they give it warning, on which it flies off, and are so shy I have seldom got within gunshot. In the parish of Bathgate the nest of the titlark (meadow pipit) is invariably chosen. The same time is required for hatching both birds. On May 19th a pair of titlarks finished their nest. On the 20th, 21st, and 22nd the female laid an egg each day. On one of these days a cuckoo put in one of her eggs; and on the 23rd the titlark began to sit. On that day fortnight, June 6th, they were all hatched, the cuckoo a third larger than the rest. On the 10th two of the titlarks were lying dead at the bottom of the ditch, where the nest was. The other young titlark had disappeared. On the 13th it had grown so fast it filled the nest. It was constantly gaping for food; upon its back, from the shoulders downwards, there was a peculiar depression not noticed in any other young bird. The titlarks paid unwearied care. They fed it ten or twelve times an hour. When they brought food they alighted twenty yards from the nest, and stole amongst the grass at the bottom of the ditch, now and then stood still and looked around to see if they were watched—so cunning and jealous of their care." As the nest was too far from his house for close observation he "put it into a titlark's nearer home, in which were five young ones six days old." He "went next day expecting to see the young cuckoo dead, but the female was carefully covering it with outstretched wings from a heavy shower of rain then falling, while her own young ones were lying helpless within two inches of her nest, having been thrust out by the intruder," an incongruity in nature difficult to solve. "On the 21st, when he teased it, it pursued his finger ten inches beyond the nest, sparring with its wings, and crying like a hawk. As noticed by Montagu, when fourteen days old, the restless disposition ceased, and it allowed young birds to remain in the nest. It was sometimes fed with snails, and worms three inches long, as if aware of its voracity, for he never saw titlarks feed their own young with such mouthfuls. He also certified that the cuckoo *places her egg in the titlark's nest by its bill.* "On Sunday, June 24th, 1838, when two sons of Mr Tripeny, farmer in Coxmuir, were sitting in a plantation tending their cattle they saw a cuckoo alight upon a hillock of moss close by. It picked up an egg with its bill, and, after looking to see if any one was in sight, hopped down with it amongst the heath. They ran to the place, and saw it rise from the side of a titlark's nest, into which it put its head. In the nest (which was arched over with strong heath, and had a narrow entrance) there was a newly-dropped cuckoo's egg, along with one of the titlark's own."

I make no apology for introducing such facts from the observations of others, as my object in writing this little history of our birds is truth, for every year there are disputes in the press about the cuckoo and its eggs. In 1889 it went through the papers that a cuckoo's nest was got in France that year with five eggs—the female cuckoo sitting on them—the nest built by the cuckoos. Another instance was given the same year of a cuckoo's nest, with three young ones, being got near St Andrews. The Fife papers said—

CUCKOO'S NEST.—In a broom bush on the farm of Horselaw, near Cupar, Mr Walker Robb last week found a cuckoo's nest with three eggs in it. This week three young birds have been hatched, and the parent birds (which is rather an unusual thing for their kind) are feeding them regularly. The mellow notes of the old birds are to be heard frequently during the day.—May 18th, 1889.

Another instance was recorded from Midlothian. Yet in spite of these the Edinburgh papers held that the cuckoo never hatched its own eggs. One writer says—

> "I see from the public prints that Professor Muller says he knew of a cuckoo that did so. I have not seen the date, therefore cannot give the Professor's facts. I merely mention this very rare—perhaps hitherto unknown—instance of incubation by the cuckoo."

Another writer said—

> "None of us are too old to learn, but I am too old a bird to believe on the mere assertion of a single man, however eminent that man may be."

This question—"Does the cuckoo ever hatch its own eggs?"—was going on at the very time these instances were recorded, which makes the question interesting, if not perplexing. I am sorry I did not go to Mr Robb, at Horselaw, and see the cuckoo's nest with eggs or young, for I believe in its truth, as there is no law in Nature so absolute (in connection with birds and their eggs) that cannot be varied. At one time it was thought an internal impediment prevented the cuckoo from incubating—now exploded. During the discussion the fact of placing its egg in the nest of other birds *by the mouth* was clearly demonstrated. An "Auld Herd Laddie"

> "Saw the cuckoo place her egg by the mouth into the heather linnet's nest when mobbed by the excited linnets, trying to make her drop her egg. When the deed was done they all at once left, some of them so exhausted as not to be able to fly any distance. He once saw the heather linnets succeed in making the cuckoo drop her egg and break it. They all at once left before they had time to see if it was broken or not, leaving the cuckoo sitting alone, crying her well-known note, which she could not do while they were teasing her with the egg in her mouth. He went to the spot and found the broken egg he saw her drop."

I think the "heather linnets" were meadow pipits. He asks some pointed questions—"Can any of your readers tell me how the heather linnets know when the cuckoo has an egg in her mouth ready to deposit it into one of their nests, as *they do know, without a doubt?* Also, How does the cuckoo know where the heather linnet's nest is, so as to get her egg deposited? When a boy these were puzzles to me. Your readers may think she found it out beforehand, but I doubt that. Did any one ever see a cuckoo looking for nests? From what I have seen I think the linnets, in their extreme anxiety to protect their nest, lead the cuckoo to it." And as to rearing the young cuckoo he says—

> "The cuckoo stays with us until the young are strong on the wing. It is thought it takes no part in rearing the young. That may be the case while the young are in the nest, but my belief is that after the young leave the nest the heather linnet has nothing more to do with it, and the old cuckoo begins the parental duties. I have often got a young cuckoo nearly as large as the parent (they are long in taking wing), and every time the old one made its appearance. If he did not, I had only to make the young cry, when the old one (only one) came to the rescue."

In this discussion another writer gives an instance of an old cuckoo giving food to a hedge-sparrow to feed its young. He said—

> "My bedroom window commands a view of a long row of bee-hives, sheltered by a hedge. One morning in spring I saw a cuckoo sitting on the apex of one of the hives. A hedge-sparrow flew out of the hedge and alighted close to it. The sparrow raised its bill to the cuckoo's and flew back to the hedge, where a young cuckoo was shortly after taken from a nest there. I often heard the noisy *chuckle* of the cuckoo flying to and fro just outside my room, near my apiary. No doubt the mother cuckoo was conveying food to help the foster mother in rearing her alien offspring. A young cuckoo was hatched in a robin's nest built on a stump in another part of my garden. It died before it was full fledged; but while it was in the nest a cuckoo haunted the beech, elm, and oak trees close by as if watching over its cradle. I am convinced the cuckoo takes an interest in the nest where she placed her egg, knowing its little foster parents will require help for their large nestling. And as to the cuckoo being gregarious, I have seen upwards of twenty in our field feeding on the caterpillars of the burnet moth."

A curious instance was given in the *Field* of a cuckoo depositing its egg in the nest of a chimney swallow built on a beam close under the insides of a garden shed, so situated that the cuckoo *could not possibly have laid it there, but must have carried it after being laid.* It was hatched before the swallow's eggs, which were at once ejected. The same writer says—

> "Another young cuckoo in a pied wagtail's nest within five yards of my house died when a week old."

In a note on page 394, vol. II., of the fourth edition, Yarrel mentions 78 different species of birds in whose nests the cuckoo puts her eggs. So she is not limited in her choice of dupes. This quite corroborates what I have said about the cuckoo placing its egg in the nest by the mouth. The "*noisy chuckle*" is different from the note of the male—more like the gurgling of water from a bottle—like the cry of the goatsucker, which bird it resembles. A young cuckoo was got in a meadow pipit's nest at Priormuir, nearly fledged, so large that it almost filled the nest—like a young pigeon. It was got by watching the old pipits with worms in their bills. On "Gowks' Day," April 1st, 1894, this early harbinger of summer was heard in Keil's Den, Largo; Maspy Den, Falkland; in the woods near Leslie House; Wemyss Castle; at Balgonie Castle, Markinch; and at Dysart. On June 18th, 1893, one frequented a garden in North Street, near the United College, close by where some gooseberry bushes were infested with green caterpillars. Being a holiday—built on Jezebel's "Fast Day"—the shops were closed; no bird-lime could be got. So the proprietor, having linseed oil, made bird-lime for himself by boiling it for five hours, as he was sure the great number of caterpillars on his bushes would attract the bird to his garden. He saw it alight on a wire fence close to the bushes, so he tied a bit of pease-stick on the top of the fence besmeared with his bird-lime. In ten minutes the cuckoo alighted, and was caught. It lived a fortnight in a sparred box, fed chiefly with the caterpillars, but it died—a fine specimen. He got it stuffed, and still has it—a singular capture in the city, commented upon in the press at the time. In June 1888 and May 1889 I both saw and heard one about the gardens in the city. So it is not so rare about St Andrews, nor essentially a wood bird, like its congeners, the woodpeckers and creepers, preferring open pastures or heaths, or gardens where caterpillars abound. Although it perches on a tree or a stone, it is no more a climber than a lark or a swallow, but from its formation of feet (like a parrot or woodpecker) it can grasp small twigs or a wire; but from its very short legs, queer toes, and long wings it is a bad walker, and almost as bad at rising from the ground as a swift. Its flight is also swift and gliding—usually low—sometimes mistaken for the sparrowhawk. In hilly moorland it skims over the ground, alights on a stone or crag, and balances itself like a wagtail, throws up its tail, lowers its wings, and tells its name to the air. In woods it glides with great celerity, and perches firmly, but is very shy, and keeps out of sight. Hence it is much oftener heard than seen: and because it leaves us early is called the bird of July.

"He's told his name to every grove—
Cry shame such vanity upon—
Yet now at parting we grow sad,
For when he leaves us Spring has gone."

And regarding its ventriloquism, I may just say it is

"The same whom, in my schoolboy days,
I listened to that cry

Which made me look a thousand ways—
In bush and tree and sky.

To seek thee did I often rove
Through woods and on the green,
And thou wert still a hope—a love—
Still longed for, never seen.

And I can listen to thee yet—
Can lie upon the plain
And listen till I did beget
That golden time again."

As a cuckoo mentions nothing but its own name, these lines tell why—

"Once from the town a starling flew,
And on the road there met his view
A cuckoo, who to him did say—
'What is the news from town to-day?'
Said he, 'The nightingale's sweet lays
Receive from all the general praise.
The thrush, the blackbird, and the wren
Are slightly mentioned now and then."
Then said the cuckoo anxiously,
'Pray, tell me what they say of me.'
The starling faltered, then replied—
That greatly hurt the cuckoo's pride—
'That is a thing I cannot do,
Because they never speak of you.'
The cuckoo, tossing then his head,
In anger to the starling said,
'I'll be revenged, and will. from spite,
Sing of myself from morn till night.'"

Hence, as Tennyson says—

"To left and right
The cuckoo told his name to all the hills."

In his "Cuckoo and Nightingale," from Chaucer, Wordsworth says—

"Among lovers it was a common tale
That it was good to hear the nightingale
Ere the vile cuckoo's note be uttered."

"And shield us from the cuckoo and her lore,
For there is not so false a bird as she."

Shakespeare also has many bitter allusions to female falsehood. Hamlet, even of his mother, says—"Frailty, thy name is woman"—no doubt based on Nature's will and warning by the sublimest of all "blasphemers," who said—"He that is without sin cast the first stone." Nature's poet seems to take a special pleasure in branding the cuckoo's dupe, the cuckold. In nearly every one of his plays he is despitefully mentioned. In "Othello"—one of the grandest works on jealousy—he makes the villain Iago say to *his* dupe, Roderigo, "If thou canst cuckold him (Othello), thou dost thyself a pleasure and me a sport." To Othello himself Iago exclaims—

"O, beware, my lord, of jealousy—
It is the green-eyed monster which doth make
The meat it feeds on ; that *cuckold lives in bliss*
Who, certain of his fate, loves not his wronger.
But, O, what damnéd minutes tells he o'er
Who dotes, yet doubts, suspects, yet strongly loves !"

He even makes Iago's own wife, Emilia, say to Desdemona, who asked—

Desd.—"'Wouldst thou do such a deed for all the world?'
Emilia— 'The world is a huge thing. 'Tis a great price for a small vice.
Why, who would not make her husband a cuckold
To make him a monarch ? I would venture purgatory for't.'"

Although in the "Merry Wives of Windsor" he makes jealous Mr Ford declare—

"*Cuckold! wittol—cuckold! the devil himself hath not such a name.*"

But, according to Emilia and Nature's law, is it fair to clap man and woman together on public Boards, M.P's, &c.? Shakespeare thinks not, for when Cleopatra wished to go personally to the camp with Antony he makes Enobarbus say aside—

"If we should serve with horse and mares together,
The horse *were merely lost ;* the mares would bear
A soldier and his horse."

And old Homer 850 years before Christ* makes Hector say to his wife, Andromache—

"No more, but hasten to thy tasks at home,
There guide the spindle and the loom.
We glory summons to the martial scene ;
The field of combat is the sphere for men."

Many rhymed allusions are made as to its brief stay with us, such as—

"In April come he will ;
In May he sings all day ;
In June he alters his tune ;
In July, he prepares to fly ;
In August go he must."

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* The noblest heretic and sublimest "blasphemer" of them all (according to the Jews).

In 1590 old John Haywood also wrote a graphic verse on its voice—

"In April the cuckoo can sing by rote;
In June ofttime she cannot sing a note.
At first *koo-koo*, *koo-koo*—sings all she can do;
At last *kookè*, *kookè*, *kookè*, six *kookès* to one *koo*."

The following strange lines also show the interest poets take in its note—

"Then Kirke White said to William Howitt, 'You,
Sir, are the next to give us tale or song;'
Who answered he would not detain us long,
Having no tale, but just give an extract
Statement of what, we might depend, was fact.
Touching the singular catastrophe
That once befel a cuckoo; for that he
Formerly had but *one long shout*, in lieu
Of the *two short ones*, which so well we knew;
Till Fate, to take his voice's penny, came
And gave change in half-pence for the same;
For one day, as it happened, Mrs Eve,
Cutting her hair, her scissors chanced to leave,
Where, too, the hungry cuckoo chanced to get them,
And, rather fancying he might like them, ate them;
But, the twin blades, his throat in passing through,
Unfortunately *snipped his shout in two.*
'Well done,' said Millar, and 'Well done, well done,'
Hall shouted, 'mid the highest smiles of Fun."

In some parts of Scotland April 15th (the day they were supposed to come) was called "cuckoo day"; if stormy, it was called "gowk's storm," as we have the "chuchat storm" in May —hence the old rhyme—

"In the month of Aperel
The gowk comes over the hill
In a shower of rain."

There is also an old fable that the cuckoo originally made its own nest and reared its young like other birds, till one day a cart full of hay passed over her and crushed her loins, hence the hollow in her back, and why she flies so low, and puts her eggs in other birds' nests, and leaves us before hay-cutting begins, for, as the old rhyme says—

"The first cock of hay
Frights the cuckoo away."

Guernsey fishermen say, "the cuckoo flies away on the first sight of barley in the ear;" and in Lancashire the people say, "the cuckoo comes wi' a haw leaf and gangs awa wi' a bere head." In Denmark the fabulous reason for non-building is, that when first heard, every village girl kisses her hand and asks of the cuckoo, "When shall I be married?" and the old wives cry, "When shall I be relieved of marriage?" and so the poor bird is so perplexed with answering she has no time to build, and has to put her eggs in other birds' nests. In Bohemia they mix up the old miraculous fables of the Church, for they say the Festival of the Annunciation of Christ, in memory of the Angel's salutation of the Blessed Virgin on March 25th, used to be held sacred, even by the birds, so all left off building their nests except the cuckoo, and for this want of respect to Holy Mother Church, she, like many a poor human heretic, was cursed, and deprived of her husband, and had to lay her eggs in the nests of other birds. Indeed, some authors say, as a scientific fact, that cuckoos do not pair, but live in promiscuous concubinage, leaving others to rear their natural offspring, which, after all, may be true, as it agrees with natural begot children everywhere. Job alludes to the ostrich as unnatural in leaving her eggs to be hatched by the sun amongst sand, saying, "She is hardened against her young ones as though they were not hers." "Because God hath deprived her of wisdom"—as the cuckoo does in the nests of little birds—only the little birds must provide for the young cuckoos, while the young ostriches provide for themselves. The fables regarding this singular bird are endless. Brown, in his "Pastorals," makes it a companion to the sleepy dormouse in winter; for, like White with the swallows, he thought it slept through the winter instead of migrated.

"For, in his hollow trunk and perish'd graine
The cuckowe now had many a winter laine,
And, thriving pismires laide their eggs in store,
The dormouse slept there, and a many more."

And Willoughby says, "The servants having heated a stove in winter with some decayed logs of willow, were surprised to hear the cry of 'cuckoo' from the fire, three times repeated. The affrighted serving-man drew out the logs, and, seeing something move in one log, opened it with a hatchet, and drew out a quantity of feathers, and finally a cuckoo, brisk and lively, but wholly denuded of covering, and without any winter provision in its hole. The boys kept the bird alive for two years in the stove." So runs the story, but we all know the equally fabulous religious fable of the phœnix rising from the flames and ashes of another bird; and humanity has too sadly known the cruel fables attendant upon creeds and priestcraft. Yet it is not very long since some reputed naturalists maintained that not only cuckoos but swallows hybernated and passed the winter under water amongst mud, as the following paragraph in the *Scotsman* of March 28th, 1884, shows:—"KELSO.—INTERESTING TO NATURALISTS.—Thursday last two swallows were seen skimming the surface of the Tweed, near Rosebank Toll. They have not been seen since, but their appearance a month earlier than usual favours the *hybernation theory, which has now many supporters in the Kelso district*;" and the *Daily News* quite recently said, "A Cornish myth relates with all gravity that a cuckoo which retired into a hollow log was roused from its winter sleep when the wood was thrown on the fire, and astonished the company by its sudden cry." At one time the fables connected with natural history were as rigidly believed as the miraculous tales of what is called religion. But how men can still believe that swallows dive to the bottom of a pond or a river to escape the rigour of winter, and remain eight months in the year without breathing—feathers not only preserved, but renewed by moulting—is almost as bad as belief in miraculous creeds. It is not very long since people implicitly believed that the bernicle goose (*Anas Erythropus*) was hatched from the small barnacle shell, *Lepas Anatifera*, seen sticking upon rotten wood cast up from the sea. In "Sibbald's History of Fife," published at Cupar in 1803, the editor gives two instances where both of the writers declared they were *eye-witnesses* of the transformation. Thus (with the spelling modernised), "Boeth Cosmographie," chap. XIV., says:—

> "Some men believe that the claik geese grow on trees by the nebbs, but their opinion is vain; and, as the nature and procreation of these claiks are strange, we have made no little labour and diligence to search the truth and verity thereof; we have sailed the seas where they are bred, and find by great experience that the sea is more the cause of their procreation than any other thing. For all trees cast into the sea by time become worm-eaten, and in the small holes and bores thereof grow small worms. First, they show their head and feet, and last they show their plumes and wings. Finally, when they come to size and quantity of geese, they fly in the air as other birds do, as was proved in the year of God 1490 in sight of many people near the castle of Petslego, where a great tree was brought by the sea to land. The laird got this wonderful tree divided by the saw, when a multitude of worms appeared thrawing themselves out of the holes and bores of the tree. Some were rude, as if but new shaped; some had baith head, feet, and wings, but nae feathers. Some were perfectly shaped fowls. At last the people, having the tree more admired each day, brocht it to the Kirk o' Sanct Androis, where it remains yet to our days. And two years after this another sic like tree came into the Firth of Tay, beside Dundee, worm eaten and holes full of young geese in the same manner. A few years after this, in the port of Leith, beside Edinburgh, anither sic like tree case

happened. A ship named the 'Cristofir,' after having lain three years at anchor, was brought to Leith, and being rotten, was broken down. As before, all the inward parts were worm-eaten and all the holes full of geese in the same manner as we have shown. And if any man allege by vain argument that this 'Cristofir' was made of the trees that grew in these isles, and that all the roots and trees that grow on these isles are of the nature to be finally by nature turned into geese by the sea, we prove the contrary by a notable example shown before our own eyes. Mr Alexander Galloway of Kinkell was with us, who expressed a most earnest desire to search the verity of these obscure and misty doubts, and by chance lifted up a sea tangle hanging full of mussel shells from the root to the branches. He opened one of the mussel shells, and was more astonished than before, for he saw no fish in it, but a perfect shaped fowl. This person, knowing we were desirous of such uncouth things, came hastily with the said tangle and opened it before our eyes as said. By these and many other reasons and examples we cannot believe that the claiks are produced by any trees or roots, but always by the nature of the ocean sea, which is the cause of many wonderful things. And because rude and ignorant people often saw the fruit that fell from the trees (which stood near the sea) converted into geese they believe that these geese grew upon the trees hanging by their nebbs like apples or other fruits on their stalks ; but their opinion is not to be sustained. For as soon as these apples or fruits fall off the tree in the sea flood they grow first worm-eaten and by short process of time are altered into geese."

Can any faith or belief be more tellingly absurd than this—no matter whether it be natural history or priest-planned theology, and only equalled by this extract from "Gerard's Herbal" (page 1587), which also declares :—

"What our eyes have seen and hands have touched we shall declare. There is a small island in Lancashire called the Pile of Foulders, wherein are found pieces of old ships and trunks of old rotten trees cast thither by the sea, whereon is found a certain spume or froth that in time breedeth certain shells of a whitish colour, wherein is contained a thing like a lace of silk finely woven together, one end whereof is fastened unto the inside of the shell, as the fish of oysters and mussels are. The other end is made fast unto the belly of a rude mass or lump, which in time cometh to the form and shape of a bird. When perfectly formed the shell gapeth open, and the first thing that appeareth is the foresaid lace or string ; next cometh the legs of the bird, hanging out, and as it groweth greater it openeth the shell by degrees till it is all come forth, and hangeth only by the bill. In short space after it falleth into the sea, where it gathers feathers and groweth to a fowl bigger than a mallard and lesser than a goose, having black legs and bill, and feathers black and white, spotted in such a manner as our magpie—called in some places pie—Annet—which the people in Lancashire call a *tree goose*, where they abound so much that the best are bought for threepence. For the truth hereof, if any doubt, let them write unto me and I shall satisfy them by the testimony of good witnesses."

Can any faith be more absurd, yet faithfully believed in, than this ? or could any "claik geese" exceed the human ones who believed it ? I merely introduce this as it may interest some readers to know the ignorance and alsolute faith our forefathers had in fables regarding natural history—leaving aside creeds and those connected with religion. The ancient Greeks knew that the cuckoo left their sunny shores for the still warmer climate of Africa about the same time as the turtle-dove, and called it the "turtle-leader." They also believed it changed into a hawk. Aristotle and Pliny both say it changed into a veritable bird of prey. And Pliny (one of the oldest writers on natural history) gravely says—

> "There is another wonderful thing about the cuckoo. In whatever place a man is standing when he hears it first, if a mark be drawn round his right foot and the soil dug up no fleas are born where this is scattered."

Were this true it would mean an invaluable receipt. When the Westphalian peasant first hears "cuckoo" he rolls on the grass that he may be saved from rheumatism for the rest of the year. To hear it first when you are fasting is considered in many countries a sign of ill luck; and very widely spread is the belief that if you have silver in your purse when you first hear it you will never want money all year. If this were the case, many besides schoolboys would be on the lookout for the cuckoo, as "money is an idol worshipped in all climates, without a single temple, and by all classes, without a single hypocrite." In Yorkshire and Derbyshire even yet people believe it is turned into a hawk. In Switzerland the cuckoo of this year will be an eagle next. In Bohemia it is a cuckoo in spring and a hawk the rest of the year, preying on pigeons and fowls. In some parts of Germany it becomes a sparrow-hawk after St John's Day; and in France it is changed into a hawk about St James' Day, and resumes its former shape in spring when it returns on the kite's back. But the fables about the cuckoo are as endless as unedifying—all, no doubt, sprung from the singularity of putting its small eggs into the nests of such little birds as the meadow pipit and the hedge sparrow, and its young reared by them—birds only 6¼ long by 9 inches, while the cuckoo is 14 by 23—more than double their size, yet their eggs about the same—the cuckoo's being $\frac{7}{8}^{16}$ long, the pipit's $\frac{6}{8}^{16}$, the rock pipit's being as big as the cuckoo's, while in colour they are also about the same—all being, no doubt, designed by Nature for deception. Some are light coloured like the pied wagtail's, but on close inspection readily known, being usually marked with black dots. Besides the nests of many small birds, its egg has been got in those of the mavis, blackbird, and red-backed shrike. On the heathy moor which border the lake district of Cumberland and Westmoreland the cuckoo is very abundant; so also is the meadow pipit, in whose nest it chiefly drops its egg. I may point out that the size of the egg does not always denote the size of the bird, for while the single egg of the auk and guillemot is large for the size of the bird, the three eggs of the cormorant are comparatively small without any particular reason, such as the cuckoo has to deceive smaller birds. The curlew lays four large eggs, the hooded crow five; but though the birds are about the same size, one of the curlew's would weigh all the crow's, without any special cause. The general colour of the head, neck, breast, and upper parts of the adult are deep bluish-grey, darkest on the wing coverts; the belly, thighs, and wing coverts white, with black bars; inner webs of the quill feathers with oval white spots; tail, black, with a few white spots; tips of feathers, white; bill, dark brown, base yellow; corners of the mouth and rim round the eyes orange; iris, gamboge-yellow; gape, orange-red; legs, lemon yellow. Female similar. Before the first moult the young are different, the upper parts being deep brown, tinged with grey, margined and spotted reddish-brown—the feathers on the forehead margined with white, and a white patch on the back of the head; throat and under parts yellowish-white, with black bars. The young females have more reddish-brown, and want the white on the head; iris, brown; legs and toes, light yellow. The young still retain some of the reddish-feathers, and gave rise to an erroneous new species. Having said so much about the cuckoo, I may as well finish with "An Old Parable dedicated to St Andrews University Court"—Dundee being the manufacturing cuckoo which adroitly deposited her egg in the small University nest of learning in the old city of St Andrews:—

I.

"Secluded in a hedge for years there stood
A sparrow's nest;
And while the trees in shady wood
In green were dressed,
Year after year the sparrows reared their brood—
Safe—undistressed.

It chanced upon a day in early spring
That thither flew—
Roving abroad on her uncertain wing—
A strange cuckoo.
She leaves an egg—her mocking chuckles ring
The woodland through.

Startled, the sparrows cease their merry play,
And homeward fly.
'What's in our nest?' with fluttering dismay
They shrilly cry,
When the strange thing that in their dwelling lay
They chanced to spy.

A startling answer, echoing loud and clear
The woodland through—
Like mocking laughter—terrified, they hear—
'Cuckoo! cuckoo!'
And trembling, cry out, 'Oh, dear! oh, dear!
What shall we do?'

II.

'It's a clumsy production,' the male bird said.
'It cumbers our nest, and its mother has fled.
We must cast from our home this embryo cuckoo;
With birds of that feather we've nothing to do.'

But the female bird said, with a tear in her eye,
'If we cast it adrift it will certainly die.
Let us rear it along with our own little brood—
By their worthy example it *may* become good.

If clumsy 'tis big, and when reared 'twill be strong.
It may come in quite handy for bringing along
Large-sized worms which we are too small to convey,
And thus our attention and nurture repay.'

Mr Sparrow replied, with a sceptical sneer,
'You argue with very great reason, my dear.
But attempts are not often successful, I fear,
To make a silk purse of a clumsy sow's ear.'

With his cautious remarks he was fated to find,
He produced no effect on his better-half's mind;
And—as wise wedded birds deem it prudent to do—
Let her have her own way. So they reared the cuckoo.

III.

There's weeping and there's wailing in that nest upon the tree;
There's an uncongenial family there who never can agree;
And the cause of all the trouble and the noise and how-d'ye-do
Is that wretched interloper—that alien cuckoo.

When the parent birds requested him to bring a worm supply,
He put his claw upon his beak and winked the other eye,
And proceeded very calmly to select the very best
Of the worms that were provided for the sparrows of the nest.

His appetite was fearful, and it never seemed appeased;
He grew so very hulking all the family were squeezed;
And because he found the space too small to turn with ease about,
He deliberately commenced to chuck the other fledglings out.

The horror-stricken parents, seeing thus their offspring killed,
Were with a raging fury, born of deep resentment, filled.
They threatened to remove the heartless alien from their nest;
But the alien only smiled and said, 'Come on, then! try your best!'

> If you look into the nest to-day, you'll see him there quite plain,
> Sitting on the only sparrows that remain;
> And the parent birds, distracted, are still wondering what to do
> To rid their little dwelling of that terrible cuckoo."

This reminds me of what Shakespeare makes the fool say to King Lear—

> "The hedge-sparrow fed the cuckoo so long
> That it had its head bit off by its young"—

as King Lear had his sovereignty bit off by his daughters; or as he makes Pompey say to Mark Antony in "Antony and Cleopatra"—

> *Pompey*—"Thou dost o'ercount me of my father's house;
> But since the cuckoo builds not for himself,
> Remain in't as thou mayest."

ORDER III.

As no members of the fifth or *Tenuirostral* tribe of the *Insessores* or perchers are found in Britain, we come to the *Rasores* or scrapers of Illiger, the third order of bird in this classification, which, in addition to the *Gallinæ* of former authors, embraces the *Columbæ* and the *Struthiones*—this last group containing some of the largest species of birds in the world, such as the ostrich and the cassowary, which, though deprived (by their shortness of wing) of that power of flight possessed by the two previous orders—the *Raptores* and *Insessores*—make up for it by their speed and endurance in running, their legs and muscles having extraordinary power, and their feet constructed for the purpose, the toes being short and strengthened by a membrane connecting them at the base, while the hind toe is either wanting or imperfectly developed on the *tarsus*. The five divisions which compose this order are the *Columbidæ*, *Phasiandæ*, *Tetrionidæ*, *Struthionidæ*, and *Cracidæ*. Of the last we have no representative in Europe. The dodo (now extinct) is supposed to be the connecting link between the latter divisions as well as the American *rhea*—a bird nearly as large as the ostrich. The genus *Gallus*, in which our domestic fowls *Gallus Domesticus* are, gave its name to the *Gallinaceous birds*. Though the general form of our domestic fowls agree with the pheasant, yet the comb and arched tail of the domestic cock proclaim the difference. They are all polygamous, and, like the game cock, cannot bear a rival. They are all natives of the East Indies, but when introduced into Europe is uncertain; nor is it certain what the species is in its original state. It was in Britain before the Roman Invasion; and when the South Sea Islands were first visited by Europeans, it was there in the domestic state. Cock-fighting was a fashionable amusement of the savage natives, as well as with the Greeks and Romans, also of the Chinese and Malays and other nations of the present day. The cock was sacred to Apollo, Mercury, Mars, and to Æsculapius, figured on Grecian and Roman coins and gems. The ancient Greeks called it the *Persian bird*, but there is no proof it came from Persia. The jungle fowl of India was the first species of *gallus* known in its wild state—at one time thought to be the original, but more recently the Bankiva fowl—*Gallus Bankiva*—and other species found in Java and other islands of the Eastern Archipelago more nearly resemble them, especially the bantam breeds. Sir William Jardine says—"Many bantams so nearly resemble this bird that there would be great difficulty in distinguishing them." Some naturalists think they may be derived from intermixture with different wild species; we have so many varieties—such as the game, the dorking, the Polish, the Spanish, the Malay, the Hamburg, the Cochin China, and the various bantams, besides countless crosses. Our larger breeds may be sprung from the jungle fowl; the bantams from *Gallus Bankiva.*

SYNOPTICAL TABLE OF THE RASORES OR SCRAPERS.

Order.	Tribe.	Family.	Sub-Family.	Genus.	British Specific Names.	Latin Specific Names.	Abbreviations.
3	...	1	...	1	Ring Dove	*Columba Palumbus*	I.
..	...	...	...	...	Stock Dove	,, *Ænas*	I.
...	...	...	...	...	Rock Dove	,, *Livia*	I.
...	...	...	...	...	Turtle Dove	,, *Turtur*	P.V.
...	...	2	...	2	Common Pheasant	*Phasianus Colchicus*	I.
...	...	...	...	...	Capercailzie or Wood Grouse	*Tetrao Urogallus*	I.
...	...	3	...	3	Black Grouse	,, *Tetrix*	I.
. .	...	...	...	4	Red Grouse Ptarmigan	*Lagopus Scoticus*	I.
...	...	...	...	...	Common Ptarmigan	,, *Mutus*	I.
...	...	...	..	...	Sand Grouse		I.
...	...	...	...	5	Common or Grey Partridge	*Perdix Cinerea*	I.
...	...	...	...	...	Red Partridge	,, *Rouge*	I.
..	...	...	...	...	Quail	*Coturnix*	P.V.
...	...	...	...	6	Great Bustard	*Otis Tarda*	I.
..	...	...	...	...	Little Bustard	,, *Tetrax*	O.V.

FAMILY I.—COLUMBIDÆ. (*Leach.*)

Genus COLUMBA. (*Linn.*) DOVE.

In Britain this family is restricted to the four doves—the ring dove (or cushat), stock dove, rock dove, and turtle dove. By early authors the various species were placed in one genus —*Columba;* but although not represented in Britain, the family contains other groups, such as the genus *Vinago* (Cuv.), in which the bill is thicker and stronger and the feet better adapted for perching; *Ptilonopus* (Swains); and *Lophyrus* (Veill), in which genus the wings become concave, short, and rounded, the tarsi lengthened, like the pheasant's, besides others which come nearer the typical doves, such as the *Nicobar* and *Corunculated* pigeons, which lay several eggs on the ground. The young are covered with down, and follow their mother like chickens; but they feed on grain and seeds as well as the fruit or *mast* of certain trees and shrubs. The plumage of our four British species is plain—both sexes similar. They have several broods in the year, lay only two eggs at a time, the male and female taking their turn at incubation. Unlike other birds, they feed their young from the crop by vomiting up their food. Their bills being weak, they swallow grain, seeds, peas, and beans entire, as they cannot break them. Rosalind and Celia say in "As You Like It"—

Celia—"Here comes Monsieur le Beau,
Rosalind— With his mouth full of news,
Celia— Which he will put on us as pigeons feed their young.
Rosalind— Then we shall be news-cramm'd."

THE RING DOVE OR CUSHAT.

COLUMBA PALUMBUS. (*Linn.*)

"Through lofty groves the cushat roves,
The path of man to shun it;
The hazel bush o'erhangs the thrush,
The spreading thorn the linnet."—*Burns.*

This is the largest European species, and indigenous with us —amongst our earliest breeders, beginning in February, and has several broods in the year. On December 10th, 1891, I saw a pair of young ones, full fledged, which were taken out of the nest when the trees were covered with snow in a fir wood near Cameron. They were sulky and wild, and struck me with their wings when I lifted them up to inspect them. So this is *one* proof of late breeding; but young ones (and sometimes eggs) are often got in winter, which jars with those who say they do not breed more than twice in the year. Tennyson, in his "Miller's Daughter," says—

> "And oft I heard the tender dove
> In firry woodlands making moan;"

but he never meant them "making moan" because the trees were covered with snow when they had young in the nest. On June 20th, 1894, one was shot near Kelso as pure white as snow itself. In severe winters they are augmented here by large flocks from Norway. One of my notes says:—

> "15th December 1863—I saw several of the largest flocks of cushies I have ever seen coming from seaward alighting on the fields and trees—thousands in each flock. They arrived in different bodies for several days, then dispersed over the country; one of the most severe winters we have had for several years. Though the snow was not so deep, the frost was keen."

Many were shot here that year so thin as to be hardly worth eating. Although it makes its shallow nest on trees, I got one on the ground with eggs, May 4th, 1889, in a bunch of rashes on Tentsmuir, near the old fir park—singular, so many trees close by. As several authors say—"It is impossible to domesticate the cushie;" that "they will not breed by themselves or with the common pigeon, but on being set free immediately fly off to their natural haunts and return no more," I was surprised when, on February 27th, 1878, walking to Gilston, near Largoward, I saw a female ring dove sitting on a tile roof, for a pure white common male pigeon flapped up and began *rookity-cooing*, courting her. She willingly bent, hopped, and spread her tail in return. She had shorter, bolder hops than the common pigeon. She flew off in the direction of the woods. When half a mile away she flew higher and hovered, expecting him to follow. He did so for half the distance, then returned, proudly cracking the tips of his wings together, inviting her to follow, which she did, and sat on the roof beside him. On returning, I saw her again on a roof. On inquiry, I learned that a son of one of the colliers got a pair of cushat's eggs the previous autumn and set one of them in a common pigeon's nest in his little hanging doo-cot. This was the offspring. It was perfectly tame, and came into the house with the rest of the pigeons for food. It had been away for two months, and only came back a fortnight before; but I fear, from what I saw, the woods will be her home at last." This is the only instance I know of the domestication of the ring dove. Of course love breaks through all bonds, as, like *free thought*, no tie can bind it. For, as Touchstone says in "As You Like It"—"As the ox hath his bow, sir, the horse his curb, and the falcon her bells, so man hath his desires; and as pigeons bill, so wedlock will be nibbling." The ring dove is strong on the wing; found throughout Europe. In severe winters many are shot; but, being a hardy bird, it holds its own against all enemies, and gives a good illustration of the "survival of the fittest." It makes a shallow nest of twigs, and lays two pure white eggs. Its cry is more plaintive than the rock dove's, and may be likened to *coo*, *roo*, *coo*, *coo*—the two last notes lengthened into a wail, which may have caused Burns to say—

"On lofty aiks *the cushats wail*
And echo cons the doolfu' tale."

Also in his "Epistle to William Simpson," where he says—

"Oh, sweet are Coila's haughs and woods
When lintwhites chant amang the buds,
And jenkin' hares in amorous whids
Their loves enjoy;
While through the braes *the cushat croods,*
Wi' wailfu' cry."

Its chief food is grain and seeds; fond of peas and beans. In "Love's Labour Lost" Shakespeare says—"This fellow pecks up wit as pigeons peas." In the south of England, where beech mast and acorns abound, these are its chief support in autumn—swallowed whole; but in winter it feeds on the tops of turnips, rape, and other plants, hips, haws, holly berries, or what it can get. In spring it also feeds on turnip leaves, clover, young corn, and farinaceous roots—anything in the shape of grain or young corn, which may have induced Burns to write—

"One night as I did wander,
When *corn begins to shoot,*
I sat me down to ponder
Upon an auld tree root.
Auld Ayr ran before me
And bicker'd to the seas;
A cushat croodled o'er me
That echo'd through the braes."

White of Selborne gives an instance of its graminivorous feeding—"A neighbour shot a ring dove going to roost. His wife found its crop stuffed with tender tops of turnips. These she washed and boiled, and they had a nice plate of greens got in this singular manner." It would please the Sir Wilfrid type of faddists if the ring dove ate up every shoot of barley to abolish whisky, and stamp out that grand test of freedom—to take or want—as implied by Burns in saying—

"Freedom and whisky gang thegither."

Or the still grander test of the "I am that I am," who (or which) in the inner room of the Temple is represented to have set goblets full of wine before the teetotal faddists of the day as a test of their sincerity, and as a rebuke to the Israelites. Also see the Divine example of turning water into wine at the marriage feast! Solomon too, the wisest man, declares the spirit of wine is good for man—to *use*, but not *abuse* it, saying, "Eat, drink, and enjoy the fruit of your labour, for it is the gift of God," with freedom to take, but the greater freedom *not to take* if it proves an enemy; for, as cashiered Cassio says in "Othello"—"O that men should put an enemy into their mouths to steal away their brains! O strange! *Every inordinate cup is unblessed, and the ingredient is a devil.*" "I drunk!" To which Iago replies—"Come, come, good wine is a good, familiar creature *if it be well used;* exclaim no more against it." "You or any man living may be drunk at some time, man"—without saying anything about the Bible story of Lot and his daughters. But now since the doctors and science have taken *good* John Barleycorn by the hand (while eating and drinking lasts), the shoots and spirits of barley, like the hardy ring dove, will hold their own in the world, while *sobriety* and *temperance in all things* will grow and flourish (as Bailie Nicol Jarvie said of Glasgow) in spite of beastly drunkenness and narrow-minded faddists, who care less for the principles of God, Christ, or Solomon than their own selfish wills—who would steal the freedom of others, but keep their own to nurse their one-eyed fads. Such nibblers at freedom—under the guise of friends to man—reminds me of what King Henry V. says to his pious traitors convicted of treason and intent to murder him—

"Treason and murder ever kept together,
As two yoke-devils sworn to either's purpose;
But whatsoever cunning fiend it was
That wrought upon thee so preposterously,

> Hath got the voice in hell for excellence;
> And other devils that suggest by treasons,
> Do botch, and bungle up damnation
> With patches, colours, and with forms being fetch'd
> From glistering *semblances of piety.*"

Its general colour is lead-blue, wings and scapulars tinged with purple; hind part and sides of the neck glossy green and purplish-red, with two white rings round its neck—hence its name; fore part of neck and breast, light purplish red; a white patch on the wings; tail, greyish blue; iris, pale yellow; tarsi and toes, red. Female similar. Length 17½ by 30 inches in extent of wings.

THE STOCK DOVE OR WOOD DOVE.

COLUMBA ÆNAS. (*Linn.*)

> "The birds are singing in the woods;
> *Over his own sweet voice the stock dove broods.*
> The jay makes answer as the magpie chatters;
> And all the air is filled with pleasant noise of waters."—*Wordsworth.*

This bird is erroneously called the *stock* dove, from which our domestic pigeons have sprung, as it is now admitted they sprang from the rock dove. Its right to be called the wood dove is also questioned. Mr Salmon in his "Migratory Birds in the Neighbourhood of Thetford, Norfolk," says—"The stock dove which in all works upon natural history is stated to be only an inhabitant of woods, abounds here during spring and summer upon our rabbit warrens and heaths, to which it resorts for nidification. The situation for its nest differs from that chosen by its congeners—the ring and turtle doves (*C. Palumbus* and *C. Turtur*), which are always upon trees or bushes. This species, on the contrary, occupies the deserted rabbit burrows upon warrens. It places its pair of eggs about a yard from the entrance, generally on the bare sand, sometimes using a small quantity of dried roots, and barely sufficient to keep the eggs from the ground. It also lays its eggs under those thick furze bushes that are impervious to rain"—both strange places for such a strong-pinioned bird. I have also got its nest in rabbit burrows on Tentsmuir. The eggs are white, tinted with cream colour. It is indigenous, but limited to certain districts in Britain; common in Hertfordshire and some of the midland counties of England. In Epping Forest it breeds in holes of the pollard hornbeams. It begins to breed in April. On April 21st, 1894, Mr Allan Briggs got a nest in a rabbit hole on Tentsmuir, near Eden, about three hundred yards from the beach. He saw the dove fly off, and got the eggs (slightly sitten) by hauling out the nest with his crooked stick—the nest, some stalks of bent and a few of her own feathers. Another pair were seen on the 24th near the Tay. Mr Berry of Tayfield has also got their eggs in the rabbit burrows. Mr Harvey Brown asked him to get a specimen of the dove from the moor, as he had specimens from many parts of Britain and the Continent; so that our wide Tentsmuir is the general habitation of our feathered friends. They also breed in rabbit holes on the Whitadder Braes at Hutton Bridge, in Berwickshire. On April 4th, 1894, a female was caught in a rabbit stamp at Eckford, near Jedburgh, which a letter in the *Scotsman* declared "was an unprecedented fact for the south of Scotland." On April 21st a stock dove was sitting on eggs in a rabbit hole at Paxton Dean, in Berwickshire; so it is not so rare as Sir William Jardine says in his "Birds of Great Britain and Ireland," in which he says—"This species, though possessing a wide geographical range, is local in Britain, and, so far as we can ascertain, has not yet been met with in Scotland or Ireland. It is, in fact, confined to a few of the southern counties in England"—which Macgillivray iterates by saying—"It has not been observed in Scotland, and even in England is confined to some of the midland and southern counties." Burns may have exaggerated when, in "Afton Water," he couples it with the blackbird and lapwing—

"Thou stock dove, whose echo resounds through the glen;
Ye wild whistling blackbirds in yon thorny den,
Thou green-crested lapwing, thy screaming forbear—
I charge you disturb not my slumbering fair."

Its general colour is greyish blue; head and throat, deep bluish-grey; sides and back of neck glossed with green and purple red; breast, lavender—under parts, blue-grey; lower part of the back, bluish grey; tail, deep blue-grey, with a broad black bar at the end—outer feathers margined with white; iris, reddish-orange; tarsi and toes, bright red. Length, 14 inches by 26. Female similar in colour. In winter it associates with the ring dove in large flocks. Many are shot, and pass for that bird.

THE ROCK DOVE.

Columba Livia. (*Linn.*)

> "A snowy dove trooping with crows,
> As yonder lady o'er her fellows shows."—*Romeo and Juliet.*

This is the true *stock*-dove, from which all our varieties of domestic pigeons have sprung; as the mallard is of our domestic ducks, and the jungle fowl of our domestic hens. In Shetland, where they abound, they come close to the huts of the fishermen, and feed on the patches of corn land as if domesticated. It is more slender than the last; easily known by the double black bars across the wings (which are longer), the back and rump white instead of bluish grey. Its habits are also different, frequenting and breeding on cliffs by the sea-shore instead of trees or sandy downs; eggs two, and white; abundant in the Orkneys and in the rocky islands of the Mediterranean, and in immense numbers on the island of Teneriffe. Nearer home, it is plentiful on the Bass Rock and in the caverns between Auchmithie and the Redhead. In May 1893 a nest with deep-sitten eggs was got near the "Buddo Rock," out Kinkell Braes. It was only thirteen feet up, and reached by standing on a sheep flake. The nest, known from the common "doocot doo" by having sticks instead of straws, and the birds closely observed. The eggs were put under a fantail, but only one hatched, which flew off to the wider "doocot" of nature as soon as it could fly; but it is easily tamed. Mr Duncan, Sheriff-Substitute of Shetland, had one twenty years; another in Lerwick, which grew so pert and troublesome in his house, he sent in a close basket to a friend in the country ten miles away, and was surprised to see it next morning sitting as usual above the door of his house—a good proof that the homer pigeon—which in colour and shape it resembles—though heavier, is sprung from the rock dove. The male is easily known from the female, being larger, and having a bright metallic lustre round his neck like our common "blue doo." If left the freedom of Nature, it is singular how soon the finest bred pigeon—be it homer, carrier, jacobine, fantail, nun, tumbler, pouter, barbary, horseman, smiter, ruffy, and all the rest of the thirty and odd fancy pigeons—deteriorate, or rather *rise* to the handsome little blue rock dove—the origin of them all. Would that the hundred different and differing creeds, if left to common-sense, reason, and Nature, without the meddling priest, rose to the simple grandeur of Christ and truth. Like the turtle dove, they are noted for their conjugal fidelity; sit by turns on their eggs, and share the feeding of their young. When domesticated, they have four broods in the year, always two at a time—male and female—hence a boy and girl are called "a doo's cleckin," but like their tame successors they sometimes breed monthly, and often have eggs before the previous young have flown, sitting on eggs and rearing young at the same time. They flock in August and in winter. Like true love the male is jealous. As Rosalind says to Orlando in their mock wooing in "As You Like It"—"*I will be more jealous of thee than a barbary cock pigeon over his hen.*" Although we have no very high rocky cliffs or caverns near St Andrews to harbour the rock dove, yet the high spires of the east gable of our once magnificent cathedral present such temptations to their half-wild successors as to attract many of our stray domestic pigeons to roost and breed. Dozens may be seen sitting on its spires without being fed by the fancier or awed by the priest. It is 14 inches long by 27 in extent of wings; general colour, greyish-blue; iris, bright orange; tarsi, short and feathered; feet, carmine purple.

THE TURTLE DOVE.

Columba Turtur. (*Linn.*)

> "I, an old turtle,
> Will wing me to some wither'd bough, and there
> My mate, that's never to be found again,
> Lament till I am lost."—*The Winter's Tale.*

Turtle doves, like the rock pigeons, are noted for their faithfulness to one another—although (like man) I have seen both male and female pigeons incontinent, yet deserving not the pun of Shakespeare that "A young man married was a young man marréd," for, "There is none righteous—no, not one." He repeatedly quotes turtles as the types of chastity. In the "Merry Wives of Windsor" he makes Mrs Ford say to Mr Page, of lewd Sir John Falstaff, "We'll *use* this unwholesome humidity, this gross watery pumpion; *we'll teach him to know turtles from jays.*" In "The Winter's Tale" he makes

Florizel say to Perdita, "Your hand, my Perdita; *so turtles pair that never mean to part.*" And in the "Taming of the Shrew" he makes Petruchio say to Katherina's father—

> "Father, 'tis thus—yourself and all the world,
> That talk'd of her, have talk'd amiss of her.
> If she be curst, it is for policy;
> For she's not froward, *but modest as the dove;*
> She is not hot, but temperate as the morn.
> For patience she will prove a second Grissel,
> And Roman Lucrece for her chastity."

At the sacking of Orleans, when Talbot wonders he did not meet the Dauphin of France, the Duke of Burgundy in Henry VI. answers—

> "I'm sure I scar'd the Dauphin and his trull,
> When arm in arm they both came swiftly running
> *Like to a pair of loving turtle doves*
> *That could not live asunder day or night.*"

And in his verses to "Chester's Love's Martyr," Shakespeare says—

> "Phœnix and the turtle fled
> In a mutual flame from hence."

But though the emblems of love, doves are very pugnacious, the males constantly quarrelling. The turtle is the smallest and handsomest of our doves; a summer visitant, arriving in the end of April. It breeds in thick woods, and like the rest makes a shallow nest of twigs, and lays two white eggs. I have one stuffed which was shot near Boarhills in August 1863. Selby says, "It is confined to two or three of the southern and some of the midland counties of England," and Macgillivray says he was "not aware of its ever been seen in Scotland" in a wild state. It feeds upon all kinds of grain and seeds; is often kept in wicker cages, and breeds in confinement; is easily domesticated; its lively habits and plaintive cooing make it an interesting house pet. It is found in all the temperate parts of Europe. Its stay with us is brief, leaving early in September. It is more slender, wings and tail comparatively longer, than the rest of the doves; general colour of the adult, head bluish-grey; on each side of the neck is a black patch, each feather margined with white; scapulars and wing-coverts black and bluish-grey, broadly margined with buff-orange; iris, reddish-orange; legs and feet, red; female similar, but paler; length, 11¼ by 21 in extent of wings. Their eggs are 1¼ in. long, against 1⅝ of the ring dove's.

FAMILY II.

PHASIANIDÆ. *Vigors.*

The members of this family are well marked. Their short, concave wings unfit them for long flight, but this is counterbalanced by their muscular legs for running and scraping for food. They have a crop in which their food is macerated before entering their stomach. Some are polygamous, others pair. Their nest is on the ground amidst herbage; eggs numerous; when hatched, the young are covered with down, at once able to feed themselves. What a difference to young humanity! "Mewling and pucking in the nurse's arms," "and then the whining schoolboy creeping like a snail unwillingly to school," as Shakespeare in his Seven Ages has it. We have only one species in Britain, the common pheasant, which, although originally a native of Asia, has been so long naturalised as to rank in our Fauna, in Genus *Phasianus* of Linnæus.

GENUS—PHASIANUS. *(Linn.)*

THE COMMON PHEASANT.

Phasianus Colchicus. (*Linn.*)

"Jog on, jog on, the footpath-way,
And merrily hent the stile-a;
A merry heart goes all the day—
Your sad tires in a mile-a."—*The Winter's Tale.*

This bird is the beauty of the game preserve, without which, I fear, like the bustard, it would soon become extinct in Britain, and left to thrive in its native wilds of Asia, for even as late as Shakespeare's time the pheasant was likened to a courtier—in the game preserve of Royalty, for when the rogue Autolycus (in "The Winter's Tale") meets the clown and shepherd on their way to see the King, and asks their business at Court, the shepherd answers—

> *Shep.*—"My business, sir, is to see the King.
> *Aut.*—What advocate hast thou to him?
> *Shep.*—I know not, an't like you.
> *Clown* (*whispers*)—Advocate's the Court word for a pheasant, say you have none.
> *Shep.*—None, sir; I have no pheasant, cock nor hen.
> *Aut.*—How blest are we *that are not simple men!*
> Yet nature might have made me as these are."

The pheasant is too well known to need a long description. For breeding in preserves and numbers shot at slaughter-time I refer my readers to keepers and dealers in game. It takes its name from the banks of the Phasis, one of the rivers of Colchis, where it came from, hence *Phasianus Colchicus.* It is said to be the descendant of another species (*Phasianus Torquatus*), introduced into Britain from China; but this paler kind is merely a variety. They breed together; the ring-necked is the prevailing type. I have five cocks and five hens all different, some with white heads and necks, some with white wings and tails, some cream-coloured and grey, others pied and mottled all over, like parti-coloured domestic fowls. Thick underwood or long grass is its natural resort, where it lies during the day; its time of feeding, dawn and sunset, and as it always runs to its feeding ground in the same narrow paths it is easily snared. Its habit of roosting on trees is still more fatal—seen by its long tail hanging down—and as it is not easily frightened off its perch is a sure mark for the poacher in the moonlight; from this, many find their way to the market in spite of the game laws. The roosting place of the male is known, like the vanity of a fool, by ostentatiously chuckling when first he perches. The hen also chatters in response. But during summer and moulting they rarely perch; they rest at night amongst long grass or thick cover until the end of September. During winter the males associate apart from the females, nor till the end of March do they care for them coming near; but after that, like the deeper tint on the breast of the linnet, the scarlet of his cheeks and space around his eyes tells that Nature makes the cock don his courting garb. He struts, presses his wings to the ground, erects his tail, claps his wings, crows, and gathers his harem together, takes possession of a certain *beat*, and drives away every male—as proud as King David or Solomon—in the midst of his many wives. The hen makes her nest amongst long grass or underwood, and lays from ten to fourteen cream-coloured eggs. The young are hatched in June or July, and continue with the hen till they begin to moult in September. The young males, only known by their shorter spur. Sometimes two males will contend for mastery until one is killed, or both are caught. In 1856 I got a beautiful light cream-coloured cock from Cambo gamekeeper, which I stuffed. It was so keenly fighting with one of the usual colour that he caught both. In 1857 I got another cock from a friend, also caught fighting at Stravithie; so keenly were they engaged that his dog pulled out its tail; the other flew away. Strange the difference sexual intercourse makes. A few weeks before, the same cocks would be shunning the hens, and as brothers associating together, yet, at Nature's call for the continuation of kind, friends are turned into enemies and deadly combat reigns. Nor of this all-pervading feeling is humanity free. After the breeding season, Cambo gamekeeper told me that five guns in one day shot 120 cocks, but no hens; so it seems the cocks can be spared. War does the same—see the battlefield!—unless manhood-mania reaches woman. In 1858 I got a nest with fourteen eggs lying quite open under the summer-house in Spalding garden, another with twelve at the foot of a Scotch fir in Stravithie, also quite open; and to show there is no particular nesting place, when felling trees on the Duke of Roxburghe's estate at Floors Castle in 1894, a hen flew off a spruce fir, when the tree fell, her seven eggs fell, two of which were broken; the nest was eighteen feet up. In 1878 Gilston gamekeeper showed me twelve pens filled with young pheasants, hatched by barnyard hens confined in cribs. The young pheasants crept out and in by the spars. The reason of their confinement was, he allowed a Cochin China hen to go about with her brood of thirteen, but in the wood close to his house a weasel killed every one in half an hour, and left them all lying—as if bent on having a stock. He told me that pheasants, grouse, partridges, black cock, &c., give no scent when sitting. He often came across them sitting, his dogs going close past, neither set nor drew—the same dogs never missing the scent of other birds *not on the nest*. He said young fawns are protected the same way. He once saw two little roe-deer fawns crouching close within a few feet of him; his old, keen-scented Scotch terrier beside him never knew they were there—"a dog," he said, "that would follow the scent of deer for twenty miles rather than be beat"—a proof the young have no scent, nor hen birds incubating. He showed me a dead young pheasant.

"A fine healthy bird," he said, "but he knew the cause. It was the dry husks of the oats the old hen left which had plugged up the outlet of the stomach. He lost several the same way, and knew." He took his knife, opened the stomach, and showed me the cause to be as he said. Like all short-winged birds, the pheasant flies with great force. "On April 1st, 1892, the inmates of Craigend Park, Liberton (near Edinburgh), heard a thud and the smash of glass. On entering the drawing-room a fine cock pheasant was seen dead on the floor. A hole in the centre of a large pane of plate-glass accounted for its death. It might seem impossible that a plate of glass a quarter of an inch thick could be broken by the bird; but when the velocity of flight and weight of the pheasant ($2\frac{3}{4}$ lbs.) is kept in view the pressure will be understood. The bird was the victim of an optical delusion. On the sun rounding west the trees reflected on the plate-glass, explains the incident—confirmed by the fact that blackbirds and other birds often fly against this window; and, in a house near, a couple of sparrow-hawks recently shared the fate of the pheasant." As a result of semi-domestication, pied and white pheasants are common. Like domestic hens, the female sometimes crows, struts, and imitates the cock, as ladies now do the manners of men in the present manhood-mania of women, "run to seed;" but Dr Parkhurst, of New York, says—"If they succeed in convincing man that the only difference is a physical structure, there ends the influence of woman, and doing an injury to themselves which must be paid for in some way." Selby says, "The female pheasant is often subject to that singular *lusus naturæ*, the acquisition of plumage resembling the male, the cause of which, from investigations, may be attributed to age, or to some derangement of the generative organs, as the birds in confinement ever afterwards proved barren." Were this the case with the human *lusus naturæ*, woman would pause before she entirely assumed the habits of man; but of this there is no fear, for Nature reigns supreme. I once had a pair of male "ruff" pigeons, which acted as both cock and hen to each other for a couple of years—the connection being only broken when a *true* hen appeared.

FAMILY III.

Tetraonidæ.

This family, though closely allied to the last, is distinguished by the absence of those naked, caruneulated ornaments which the pheasants have on their head and cheeks, also by the hind toe becoming shorter and weaker till lost in the groups which lead to the *Struthionidæ;* the bill is also very short, and curved. Like the last, some are polygamous, others pair. They also have their nest upon the ground, and lay a number of eggs. Their food consists of grain, seeds, insects, roots, tops of heath, and other plants. Some of the genera, as the *Tetrao* and *Lagopus*, inhabit mountainous regions, braving the severest arctic winters. Others, as the genera *Francolinus*, *Turnix*, *Tinamus*, &c., are natives of the warmer latitudes of Europe and America; while the genera *Pterocles*, *Syrrhaptes*, &c., are only found on the sandy and rocky deserts of Africa and Asia. We have only three genera represented in Britain—*Tetrao*, *Lagopus*, and *Perdix*—which means grouse, ptarmigan, and partridge. I shall begin with genus *Tetrao*, at the head of which stands that splendid bird, the capercailzie—the cock of the woods.

Genus—TETRAO. (*Linn.*) GROUSE.

THE CAPERCAILZIE OR WOOD GROUSE.

Tetrao Urogallus. (*Linn.*)

> "O, Nature, a' thy shows and forms,
> To feeling, pensive hearts hae charms!
> Whether the summer kindly warms
> Wi' life and light;
> Or winter howls in gusty storms
> The lang dark night."—*Burns.*

This magnificent bird—as big as a turkey, his feathers resplendent in black, brown, green, and blue—was once plentiful in Scotland; but its large size and excellent flesh made it so good a mark for destruction that recent ornithologists say it has long been extinct in Britain, and is now only found in Russia, Norway, and Sweden. In his work published in 1833

Selby omits it in his list of British birds, saying—"The extirpation of that noble bird, the capercail, or cock of the wood (*Tetrao Urogallus*)—the last of which was killed forty years before, near Inverness—has placed the black grouse at the head of this genus in the British Fauna." And Macgillivray in 1852 says—"This magnificent bird, the chieftain of the grouse tribe, although once plentiful in Scotland, known by the name of capercailzie, has long ceased to be a denizen of our forests. It has not been seen in Scotland for half a century." In his "Eggs of British Birds," Mr Hewitson in 1854 also says—"Though for many years extinct in Britain, several attempts have recently been made to re-establish the capercailzie in this country, and, I trust, with some success." But I think them premature in their assumed extinction. Would that our own faults and failings were as easily extirpated as the capercailzie! Some years ago one was caught in a garden near Dundee by Mrs Baxter, Union Street, described in the press as "a fine capercailzie cock in a healthy condition, and was stuffed by Mr A. Donaldson, taxidermist, and as it is rarely found except in the depths of hill woods, the bird must have come from the Sidlaws." In 1878 a nest with eight eggs was got in the wood close to Lindores Loch; and on May 27th, 1879, Mr Allan Briggs got one with nine eggs at the foot of a Scotch fir in Lathrisk Wood, near Ladybank, and a sparrow hawk's with five eggs on a tree within ten feet of it; and, curiously, next year, 1880, on May 20th, he got another capercailzie's with nine eggs within six yards of the previous one, and a sparrow hawk's also quite close, with five eggs; on April 20, 1890, a capercailzie cock flew off one of the old Scotch firs on Tentsmuir (possibly the last remnants of the old Caledonian forest). Mr Canch and John Lonie saw a cock on Tentsmuir in 1892, '93, and '94, near the young fir woods (about 300 acres), planted by the late Mr Speedie. One was also seen in Mountmelville Den, about 3½ miles from St Andrews. Eight nests with eggs were got in one year at Bonskeid, in Perthshire; so, if they were nearly extinct before, the importations from Norway have taken a firm hold again—perhaps too firm for the tops of the young Scotch firs, to which they are very destructive, shoots five inches long by ¾ inch thick being often found in their crop, which can be extended to seven inches in diameter. The shooting of a fine cock in Perthshire by Prince Albert, the Queen's late Consort, no doubt accelerated the importation, as it was then considered so rare. It is the largest gallinaceous bird in Europe—the cock weighing 15 lbs. In figure it resembles the black cock, but the tail is rounded, not forked, like that species, and the male has the feathers on the head elongated. The general colour is brownish-black, minutely freckled with greyish-white and light-brown; the quills dark brown, the tail nearly black; some of the long tail coverts tipped with white; the throat and breast glossy dark green; a small scarlet patch of naked skin above the eye; iris, brown; the legs feathered to the toes. The general colour of the female and young males is dark brown, freckled with yellowish-brown; front of the neck and breast, yellowish-chestnut; the feathers of the under parts edged with white. Like the black cock, it is polygamous. The hen makes her scant nest of dry grass usually under the branch of a young spruce fir, and lays from eight to twelve eggs, $2\frac{1}{4}$ inches by $1\frac{5}{8}$, which resemble the turkey's; yellowish-brown, spotted with darker brown; length of the male, 34 inches by 52—the female much less. It was once abundant in Scotland and Ireland, but thought to be exterminated about the end of the eighteenth century. But through the efforts of the Earl of Fife and other Highland proprietors—particularly the Marquis of Breadalbane, it has been restored to the Highland forests of Scotland. Its chief resort is pine woods. It feeds on pine shoots, berries, seeds, worms, insects, &c. It has a wide geographical range on the pine-covered mountains—from Spain and Italy to the North Cape of Europe, and abundant in the north of Asia. During autumn and winter the males go in packs (the hens keep apart, and do not join until spring). It is easily domesticated, and breeds readily where there are young pine woods—preferring Scotch fir to spruce. So when there are young Scotch fir woods on Tentsmuir and heather, it may be breeding there as well as the black cock and ptarmigan.

THE BLACK GROUSE OR BLACK COCK.

Tetrao Tetrix. (*Linn.*)

> "The moorcock that craws on the brow o' Ben Connal,
> He kens o' his bed in a sweet mossy hame.
> The eagle that soars o'er the cliffs o' Clan Ronald,
> Unaw'd and unhunted his eyrie can claim."—*Hogg.*

This species abounds in the Highlands of Scotland and in some of the Hebrides. The bases of hills in heathy districts which abound with birch, alder, and willow, near lochs and morasses, are their favourite haunts. Being, like the last species, polygamous, each cock selects a beat, from which it drives away all intruders from its harem like a Turk, in doing which, desperate encounters take place—the hens having no choice, quite willing to go with the victor. Thus fortune favours the brave, and thus, as Glenalvon says of Lady Randolph, "The lion woos his bride." Although without spurs, it fights the same as the game cock—lowers its head, ruffles its feathers, and leaps. At his station early every morning and evening he repeats his call of invitation to his different wives —as willing to come as he is to call. He presses his wings to the ground, crows, and struts like a turkey cock, at the same time making a noise like the whetting of a scythe—like every creature putting on Nature's best love dress, his plumage showing the richest glosses, and the red skin of his eyebrows the deepest carmine. And thus I saw them strutting on the side of Loch Brora, in Sutherlandshire. Its habits are different from the red grouse, as it prefers low marshy soil on the borders of cultivation ; the other, high ground amongst heather. It is found as far south as the Appenines, and as far north as Lapland. It lays from six to ten yellowish-grey eggs, spotted or blotched with reddish-brown, resembling the capercailzie's, $1\frac{7}{8}$ by $1\frac{1}{2}$, which she covers when leaving. The nest is like a gipsey's tent, of the simplest kind—a few stems and dry grass, amongst high heath, brackens, or under a bush. When her eggs are laid, the hen discards the male, her whole care being incubation and rearing her young, in this resembling humanity, only the male, as well pleased, takes no heed, and is not taxed for teaching—like man. It lives on seeds, berries, shoots of heath, insects, leaves, &c., sometimes corn and turnip tops ; in winter on shoots of pines, birches, and alders. It abounds in Scandinavia, where it is protected, the males only being killed ; great numbers sent to the London market. The cock sometimes weighs four lbs., the female only two. It is broadcast over Russia and in many parts of Siberia. It is found in Fife, and been shot near St Andrews, on Priormuir, and Waterless ; often seen on Tentsmuir. On January 23rd, 1884, a grey hen (as the female is called) was shot at Priormuir, another on June 1st, 1888, and other two seen at three in the morning amongst the heather, so they likely breed there. On April 24th, 1894, two were seen in the old fir park on Tentsmuir. The cock is much larger than the hen, often double her weight. They also differ in plumage. The one is glossy bluish-black, with a conspicuous white bar on the wings, and a mixture of black and white feathers on the legs, with fringes or pectinations on the toes; a piece of bare scarlet skin over the eyes; iris, brown. The tail is curiously forked, on each side the long feathers curve outward, giving the proud-looking bird when courting a singular appearance, especially when cocked up, the pure white of the under part contrasting strongly with the deep black of the upper. The hen is grey-brown, darkest on the upper parts, all barred and mottled with darker brown; tail slightly forked, straight at the end. The young males resemble the female till the first moult. Length of the male, 23¼ inches, and 33 in extent of wings. It sometimes breeds with the capercailzie and the pheasant. The hybrid, found in Scandinavia and other parts of Europe, called *Tetrao Hybridus*, is probably between this bird and the capercailzie, so also is the *Racklehahn* of the Swedes, but it will not domesticate, and never breeds in confinement. The next genus is that of *Lagopus*, separated from the *Tetrao* by Vieillot.

Genus—LAGOPUS.

THE PTARMIGAN.

So called by Pliny from the feet and toes being covered with hairy feathers like the hare. The chief distinction between this and the last genus is in having the tarsi and *toes* entirely covered with hairy feathers, and the *sides* of the toes *without fringes or pectinations* (like the teeth of a comb). The hind toe is also shorter, little more than a nail—barely touching the ground. They also differ in habits, seeking the higher and bleaker regions, found in very high latitudes within the arctic circle; yet their food is much the same—shoots of heath, seeds of grasses, and fruits of various Alpine plants, insects, &c. They are monogamous, pair each spring—instead of the many-wived capercailzie and black cock.

THE RED GROUSE OR BROWN PTARMIGAN.

Tetrao Lagopus. (*Linn.*) *Tetrao Scoticus.* (*Lath.*)

"Out o'er yon muir, out o'er yon moss,
Whare gor-cocks through the heather pass,
There wons (lives) auld Colin's bonny lass—
A lily in a wilderness."—*Burns.*

This beautiful species—the source of more pleasure to the sportsman and more pain to the bird than any other game in Britain, is essentially native—not found in any other part of the world; plentiful in the north of England and Ireland, and abundant in the Highlands of Scotland. Large tracts of heather are its favourite resorts, not swampy ground like the black grouse, nor high, stony regions like the grey or common ptarmigan, which is found in the highest, bleakest latitudes where heather is found. It abounds in most of the Western Islands, but sparingly in Orkney, and never found in Shetland, though so near. They pair in January, breed early in April, have several broods in the year, and, as the eggs are numerous, it accounts for the stock being kept up, in spite of their immense slaughter in August and September, which is fortunate for the species, as it is confined to the British Islands; but, according to Humboldt's and Truth's "Universal Law," if the same conditions of latitude, food, &c., be found, so also may the ptarmigan, for Nature reigns supreme. Though (as tipsy Cassio says in Othello) "Heaven's above all"—if *she* draw the sexes together, no Act of Parliament nor prayer will keep them separate—nor creed nor church, when old age comes, stay the hair from turning grey. The nest is a shallow hollow, amongst heather, with a few stems of heath and grass; eggs, from eight to fifteen, amongst the most beautiful of our British bird's eggs; for variety and richness of colour unrivalled, from pale cream to deep red, spotted and blotched with umber-brown; $1\frac{5}{8}$ by $1\frac{1}{4}$. The male takes no part in the incubation, but remains near, and after they are hatched is as assiduous in their care as the female; is the first to warn them of danger, and his deep warning *kok*, *kok*, *kok*, is the signal for squatting or flying. When his craned head (called by sportsmen *bottle-neck*) is seen peering above the heather there is no hope of getting within shot, for he immediately calls and all take wing, as Burns says in his lines to "Peggy"—

"Now westlin' winds and slaught'ring guns
Bring autumn's pleasant weather;
The *moorcock springs* on whirring wings
Amang the blooming heather."

In black grouse it is the hen gives the alarm, although at the first of the slaughter season, on August 20th, she sits so close as to be often taken by the hand from a bunch of heath or brackens, missing the warning of the male—being one drawback to polygamy, and an inducement in revenge to lay her eggs on the grave of some noted sportsman, as Burns says of "Tam Samson"—

"There low he lies, in lasting rest;
Perhaps upon his mouldering breast
Some spitefu' moorfowl bigs her nest,
To hatch and breed;
Alas! nae mair he'll them molest!
Tam Samson's dead!"

The male red grouse remains with the brood (or what is left of them) till the end of autumn, after which they "pack," or assemble in flocks, and become very wild, not easily shot. Unlike the black grouse, too, it is easily domesticated, and breeds in an aviary. Its food is the tops of heath, the fruit of the crowberry, trailing arbutus, and cranberry, seeds, and insects, and if corn be growing near the heather there will the "red grouse" be. (Like the prairie hen of Kentucky, at one time so abundant in America that children were constantly employed to prevent its depredations on the cultivated fields, where not one is now to be seen.) Though a true lagopus it is best known by its old name of red grouse. Although its wings and tail are short, they are broad and rounded, enabling it to fly with great speed and force by rapid beats. As a proof, in 1892, as a shepherd was walking up Glenshellach he was struck on the breast by a wounded grouse with such force that he was knocked off his feet and lay for a time stunned. A girl came down the same glen a few days after with a large tin pail in her hand, the pail was so severely struck by a wounded wild duck that the duck fell dead, and indented the pail as if struck by a heavy hammer. The girl was swung round and knocked off her feet, but falling on the heather was not hurt. On computation, the late Professor Fleemin Jenkin, who was staying in Inchree House at the time, said, the duck (about 3 lbs. weight), flying at the rate of a mile a minute, would have gone clean through the pail as easy as two sheets of paper had the pail been fixed. It is plentiful on the Lomond Hills, and now breeds on Tentsmuir. In April 1894, thirty-two pairs were seen in one day. It was first introduced by the late Admiral Maitland Dougall of Scotscraig, in 1876. On July 2nd, his gamekeeper went with the keeper from Blairadam to the moor of Outh, and captured a pair of young grouse, which were brought to Tentsmuir. On August 8th, next year, eight more birds were got from Outh. On August 26th, 1878, the Admiral shot five birds—the first fruits. From 1879 to 1886 an average bag of 20 brace was got. In 1890, 30 brace. In 1891, 50 brace; and in 1892, 73½ brace was reached, which proves its success on Tentsmuir.

Although it does not change to white in winter like the grey species and the rest of the genus, individuals are met with more or less spotted and patched with white. Scarcely two males are alike. In some the under parts and a large portion of the back are black; but the general colour is chestnut, marked on the back and wing coverts with black spots, and undulating black lines on the under; the four middle tail feathers also marked with transverse lines, paler in summer; the space above the eyes bright scarlet; iris, hazel. It is eerie to hear the *kok*, *kok*, *kok*, or bold challenge of the gorcock at gloaming upon some wild mountain moor, far away from human dwelling, as I have heard it in Sutherland and Caithness shires, uncertain of the way to the next house or inn, which in a deep voice sounds like *go*, *go*, *go*, *go*, *go back*, *go back*. Next man, its natural life-weeder is the peregrine falcon, living almost solely on it, killing with the least pain. Unlike, as Burns says in his "Brigs of Ayr," when—

> "The thundering guns are heard on every side,
> The wounded coveys reeling, scatter wide;
> The feather'd field-mates, bound by Nature's tie,
> Sires, mothers, children, in one carnage lie."

The male is 16 inches long by 27; the female less, and lighter in colour—yellowish red, spotted and barred with black. It is the only species of the genus that does not turn white in winter. The one likest it is the willow ptarmigan, *Lagopus Saliceti*, of the north of Europe and America. Although "authority be a stubborn bear, yet it is often led by the nose with gold," like grouse shootings.

The Common or Grey Ptarmigan.

Tetrao Lagopus. (*Linn.*) *Lagopus Mutus.* (*Leach.*)

> " Admiring Nature in her wildest grace,
> These northern scenes with weary feet I trace,
> O'er many a winding dale and painful steep,
> The abodes of covey'd grouse and timid sheep."—*Burns.*

This bird differs from the last, being only found on the highest rocky mountains of Scotland, seldom to the south of the Grampians, hence never seen alive in Fife, so I need not give a long, minute description of it. It is less—15 by 24, against 16 and 27 inches. Its plumage turns white in winter, except a black streak past and before the eye of the male and some parts of the quill and tail feathers, a scarlet membrane above the eyes. But the plumage varies; the female similar in winter, but without the black streak and scarlet membrane above the eyes. In spring the general colour is brownish-black, with narrow bars of reddish yellow, tipped with grey. In summer the reddish yellow becomes greyish white. In autumn the yellow disappears, substituted by mottled grey, rendering the bird as difficult to be seen amongst the lichen-covered stones as the white is amongst the snow in winter. A constant change of plumage seems to go on in the ptarmigan, for at all times young feathers are found. Feathers are of the same materials as hair and nails, and play an important part in the wise economy of Nature. They entangle the air and reduce specific gravity, and being of the lightest and most elastic materials, enables them to glide through it with the greatest speed; and when we consider that an eagle's feather is said to consist of one thousand shafts, two thousand barbs, five and a half millions of barbules, and fifty-four millions of cilia and hooklets, we may marvel at the moulting of birds, which generally begins each autumn at the tail and ends at the head. In some birds —as the raven—it begins in May; ends in August, when most others begin to moult. As a rule, Nature's first dress to all young birds is of an unobtrusive colour to protect them from harm as well as the ptarmigan. When a quill falls from one wing a corresponding one falls from the other—so wise, so considerate is Nature! But in some birds—such as the laughing owl of New Zealand—they moult so fast as to be almost naked, and liable to be stung to death by bees. In spring the coveys separate and pair; then the inexorable law of reproduction is their chief care. The nest is a slight hollow amongst stones, with a few twigs and grass; eggs, from eight to fifteen, like the last; a little less and darker in colour, but equally beautiful. The young run about as soon as hatched, covered with a yellowish-green down; as difficult to be seen when they scatter among the grey stones as the witches on the blasted heath—so perfect is Nature in suiting everything to its proper use, whether it be a young grey ptarmigan squatting unseen on a rocky mountain's brow, or a young woman dressed out in her finery to attract and win her partner for life. Its food is Alpine berries, such as those of the *crawcrook*, cranberry, and cloudberry, or *knoop* (*Rubus Chamæmorus*), with the seeds and shoots of Alpine plants, which even in winter they not only find, but also find a warm retreat by burrowing under the snow on the surface of the mountain. It sometimes, but seldom, needs to descend amongst the heather. Unlike the bold *kok*, *kok* of the red grouse, its note of alarm is more like the croak of a frog or the harsh *churr* of the missel thrush. It breeds in confinement. Unlike the "red grouse," it is widely spread, found in all the Alpine districts of Central Europe, and abundant in the northern latitudes. Its legs and toes are covered with hairy feathers like the last. Both species have the soles of their feet bare, which distinguish them from *Lagopus Saliceti*, which has its soles covered with hairs. No doubt the covering of the feet with hair induced Pliny to use the words *Lagopus* from the resemblance to a hare. The next allied genus is that of *Perdix*—partridge—but before entering upon this genus I will describe a bird called the "sand grouse," which was found on our links in 1888.

THE SAND GROUSE OR PRAIRIE GROUSE.

(I presume) *Pterocles Setarius.*

> "Nature never lends
> The smallest scruple of her excellence;
> But, like a thrifty goddess, she determines
> Herself the glory of a creditor—
> Both *thanks and use.*"—*Measure for Measure.*

In 1888 many rare birds called "sand grouse" were scattered over Britain—about fifty seen on our links in first of June, others on Tentsmuir, Cambo, Pittenween, and Priormuir. They looked like sparrow hawks when flying. When two were flying off the links near Eden, one struck itself with such force against the telegraph wire that it cut its neck through and deep into its breastbone, killed on the spot. The man who saw it picked it up, stuffed, and still has it here. It was a female, and embryo eggs found in its ovary, showing they breed here. They were about the size of the cuckoo and turtle dove, but longer wings and pointed tail, mouse-grey, all barred and mottled with black on the back; feet most singular, having no toes, only three claws, denoting sand walkers; no hind toe; the tarsi feathered like the ptarmigan's; tail deeply forked, the lateral feathers four inches long, to a fine point, like the red-fronted swallow's or tern's; the long wings also brought to a fine point, the longest quill being 1½ inches longer than the next, and so on; the feet very small—merely stunted claws (or nails); the tarsi also short, covered with feathers like hairs. Under the heading of "Introduction of Prairie Grouse," a letter appeared in the *Field* from E. C. Molony, Fort Qu'Appelle, N.W. Territories—

> "In April 2nd I observe a paragraph on the introduction of prairie grouse into Britain. Mr Bartlet is mistaken in supposing that the food for these game birds is not to be found in the British Isles. Their chief food consists of berries from the wild rose and haws in winter; in summer, grasshoppers and other insects, and a small plant like the maidenhair fern. They are also very fond of wheat and oats. They do not migrate in our country, but stay with us all the winter, roosting in a hole in the snow at night and in stormy weather. It is possible, however, that a damp climate may not agree with them."

I do not know if these birds were the same, as I have not seen an account of them in any of our works on British birds I have read. If it is the *Pterocles setarius*, this is its description from Chambers' "Encyclopædia"—

> "Sand grouse (*Pterocles*), a genus of gallinaceous birds closely allied to grouse and ptarmigan, but distinguished by a pointed tail. The toes, or rather claws, are not feathered. The species are natives chiefly of the warm parts of Asia and Africa, and most abundant in arid sandy plains. Two species—the banded sand grouse (*P. arenarius*) and the pin-tailed sand grouse (*P. setarius*)—are found in the south of Europe. The latter species is very abundant on the arid plains of Persia. In Europe it is found as far north as the south of France, chiefly on the sterile *Landes*. It is always to be seen in the markets of Madrid. The banded sand grouse is abundant on the vast steppes of the south of Russia."

Linnæus included the grouse, ptarmigans, partridges, and quails into his comprehensive genus *Tetrao*.

Genus—PERDIX. (*Lath.*)

THE PARTRIDGE.

This genus was first established by Latham, who separated it from the genus *Tetrao* of Linnæus. Most of the species are natives of temperate or warm climates—instead of cold and bleak, like the ptarmigans—and inhabit cultivated countries, living on grain, seeds, roots, and insects; bill short, strong, and naked at the base; tarsi also bare; wings, short and concave, the three first quills shorter than the fourth and fifth. We have two species in Britain, but as far as I know, only one—the common grey partridge—in Fife.

THE COMMON OR GREY PARTRIDGE.

Perdix Cinerea. (*Lath.*) *Tetrao Perdix.* (*Linn.*)

"Rejoice, ye birring paitricks a';
Ye cootie* moor-cocks, crousely craw;
Ye mawkins, cock your fud fu' braw,
Withouten dread;
Your mortal fae is now awa'—
Tam Samson's deid."—*Burns.*

This bird is too well known to require a long description. It is plentiful in all the cultivated parts of Britain, but rare in the mountainous, moory wastes which are the home of the grouse and ptarmigan; cultivation—a foe to them—being a friend to the partridge. They pair in February, and generally have their eggs in April and May—the young able to fly in the first of June. I have seen young coveys in the middle of June; but there is no hard and fast time for breeding, for "on going over his fields on January 6th, 1884, the farmer of Powside, Methven, got a nest with twelve eggs;" but my note says, "An unseasonably mild winter; little frost and no snow." Unlike the black cock—although the male takes no part in the incubation—he remains near, and, like the ptarmigan, takes a keen interest in the young. The nest is scanty—amongst long grass, or under a branch, bush, or a hedge root—in fact anywhere, in a strip of wood, or on the fields; the eggs from twelve to twenty. In leaving her eggs, the hen covers them with dry grass or leaves. They are pale brown, 1⅜ by 1⅛. She sits three weeks. The young are known from the adult by their yellow legs before the first moult. As soon as they are hatched, the young, covered with down, run about, the male joining the covey for defence and care. In their youngest state, if disturbed they scatter and hide amongst the long grass or undergrowth to defy being caught. They seem to vanish out of sight—like the witches in Macbeth—which I have seen when suddenly come upon, the hen to help them feigning lameness, and running at the risk of being caught—in her maternal care. But when not with her young, Burns (when Willie came across "blooming Nelly" sleeping in the wood) gives a true picture when he says—

---

* Feather-legged.

"*As flies the partridge from the brake*
On fear-inspirèd wings,
So Nelly, starting, half awake,
Away affrighted springs."

Although easily reared in confinement and tamed, it does not breed in this state. Ecclesiasticus says—chap. xi., verses 20-30 (but why, I know not)—"Bring not every man into thy house, for the deceitful man has many trains. *Like as a partridge taken (and kept) in a cage*, so is the heart of the proud; and like as a spy, watcheth he for thy fall." We all know the danger of parading our treasures, and Shakespeare says—"Beauty provoketh thieves sooner than gold," which he portrays in "The Rape of Lucrece," when Colatine

"The night before, in Tarquin's tent,
Unlock'd the treasure of his happy state.
What *priceless wealth* the heavens had him lent
In the possession of his beauteous mate."

For female attraction is universal and all-powerful—innate and natural—with man as well as bird. Witness King David with Bathsheba; the sparring of the partridge (though void of spurs), and the deadly combat of the antlered stag—unless the females ape the male—like woman—doff the petticoat, take long swypes at the golf, ride bicycles, smoke cigars, and don the soldier's uniform—but not the "garb of Old Gaul," for the kilt would only add fuel to the fire of honest Nature's life-giving love. In pairing time, some sportsmen, thinking there were too many males, have shot half a dozen at different times from one hen, and still she found another to carry on her innate, maternal desire. Nor is this confined to birds or man, for when the male salmon is killed on the spawning bed, his place is immediately supplied by another. So, when one-half of creation draws and the other half pulls, there is no fear of "multiplying and replenishing" the sea as well as the earth—if not the heavens—for, reproduction is great Nature's marriage law, creation's pledge of life eternal—so powerful even in the clocking hen that when her eggs are taken from her she will sit for weeks upon a golf ball or a stone, in her desire for young. They thrive best in dry seasons, feed early after sunrise, and before sunset; hide during the day, and roost at night on bare places on the fields in coveys. As you pass along a road in the gloaming you may hear them calling each other for rest, as the gong is sounded for dinner to feed upon them in September, for, although grouse shooting begins on August 12th, when the wee pouts can scarcely fly, the partridge-slaughter does not begin till September; the pheasant in October. The reason is plain—heather is not hurt, although the young grouse are; corn would be injured. Hence for a time is the partridge and the pheasant spared by selfishness. It is indigenous in Britain, found throughout Europe, but most abundant in the temperate and northern parts. The general colour is reddish-grey, with black lines and spots, and on the belly a large horse-shoe patch of deep red-brown, which in the female is not so plain; iris, hazel, and a bare bit of bright red behind the eye. The male is 12½ by 20 inches.

The Red Partridge.

Perdix Rouge. (*Temm.*) *Perdix Rufa.* (*Lath.*)

> "Well, heaven forgive him; and forgive us all!
> Some rise by sin, and some by virtue fall."—*Measure for Measure.*

This beautiful bird is called the Guernsey partridge and the French partridge, because it is only a native of Britain by adoption, like the pheasant. The Marquis of Hertford introduced it by bringing from the Continent many thousand eggs, which were hatched under domestic hens, and turned at large in Oxfordshire. It is abundant in the counties of Norfolk and Suffolk, and spread over the southern counties of England. I am not aware of its being found in Fife, so I need not cobble up the history of a bird I never saw here. Mr Hewitson says it makes more of a nest than the other—of dry grass; eggs, from ten to twelve; Temminck says, from fifteen to eighteen, larger than the last; some of them spotted and marked with reddish-brown on a cream-coloured ground, something like those of the black grouse, but less—1½ by 1¼. Its general colour is reddish-grey; but takes its name more from its bill, legs, and feet being bright red; its iris and naked space above the eyes also red. The male is distinguished by having large blunt spurs on the tarsi, and a white collar on the throat and cheeks, with a black band from the bill to the eye and round the collar, spotted with white. Unlike the other, it prefers waste, heathy ground, to corn fields; is wilder, and gives less sport, as it runs before the dogs; the covey—dispersing and rising one after another; difficult to shoot, which may have induced David to say to King Saul, who was hunting him, "In the wilderness of Engedi, upon the rocks of the wild goats" (after he had left the "Cave of Adullam" with "every one that was in distress, and every one that was in debt, and every one that was discontented,") "After whom is the King of Israel come out? after whom dost thou pursue?—after a dead dog—after a flea?" "The King of Israel is come out to seek a flea, *as when one doth hunt a partridge in the mountains.*" Or, as Jeremiah says, "*As the partridge sitteth on eggs* and hatcheth them not, *so he that getteth riches, and not by right, shall leave them in the midst of his days, and at his end shall be a fool.*" It is larger than the last (14 by 21 inches), and is accused of driving it away—as the black rat has been driven away by the more hurtful brown one; a pity, as the red partridge is not so good for food as the common one.

THE COMMON QUAIL.

Perdix Coturnix. (*Lath.*) *Tetrao Coturnia.* (*Linn.*)

> "His cocks do win the battle still of mine,
> And his quails ever beat mine, inhoop'd at odds."
> —*Antony and Cleopatra.*

This is the smallest of our scrapers, only 8 inches by 14, yet it fights like a game-cock, though without spurs, and thus used by the ancients; the fighting of quails being still a pastime with the Chinese. It is a summer migrant in the south of Britain, rarer in the north; arrives in April, leaves in October; same food and habits as the partridge. Its nest, a slight hollow in a field of young wheat or grass; eggs, from twelve to twenty, some beautifully coloured like the ptarmigans, $1\frac{1}{4}$ by $\frac{7}{8}^{16}$. It quietly comes like the corncrake, scatters, and keeps out of sight; hence more plentiful than is supposed. It breeds about St Andrews. A nest was got near Cupar with five eggs in a grass field, July 2nd, 1862. I have a male stuffed, killed by the reaping-machine near Kingsbarns during harvest, 1863. On June 15th, 1887, a female was got dead under the telegraph wire at Eden, its neck broken; there were sixteen eggs in its ovary. Another was got on August 31st, 1892, also lying dead on the line near Eden. So there is no doubt they breed here, but their chief home is the warmer climates of Africa and Asia. Some authors say they are polygamous, but they pair like the partridge, only the male takes no part in the hatching. Selby says they are "rare in the midland and northern counties of England;" and Macgillivray says, "It is seldom they are now met with in Scotland"—hardly correct. Great numbers are killed during migration. A hundred thousand have been killed in one day on the coast of Naples, and in Sicily their autumnal arrival is looked for as a source of sport and profit, the shores being lined with people carrying guns for the purpose; and in France great numbers are caught in nets by a call resembling their cry. But the killing of quails for food is an old story, for the children of Israel in their "exodus" from Egypt were indebted to the quails, when "the whole congregation of the children of Israel murmured against Moses and Aaron in the wilderness, saying, Would to God we had died by the hand of the Lord in Egypt when we sat by the flesh pots, when we did eat bread to the full! for ye have brought us forth into this wilderness to kill this whole assembly with hunger." "And it came to pass that at even the quails came up and covered the camp, and in the morning the dew, like hoar frost, lay round about the host" (the manna or bread), "which the Lord gave them to eat," along with quails. (See Exodus xvi. 13.) And when they were with "The Ark of the Covenant of the Lord" grumbling for food "There went forth a wind from the Lord *and brought quails from the sea* and let them fall by the camp, as it were a day's journey on this side and a day's journey on the other side round about the camp, as it were two cubits high upon the face of the earth. And the people stood up all that day and all that night and all the next day, and *they gathered the quails*; he that gathered least gathered ten homers; and they spread them all abroad for themselves round about the camp. And while the flesh was yet between their teeth, ere it was chewed, the wrath of the Lord was kindled against the people; and the Lord smote the people with a very great plague." (See Numbers xi. 31, 32, and 33.) Now, when we consider a man will walk thirty miles a day at least, and that two cubits is a yard, just fancy sixty miles of quails lying three feet deep around their camp in the wilderness! We need not speak of migration in flocks after this. The next family is—

FAMILY IV.

Struthionidæ. (*Vig.*)

The typical groups of this family are birds of great size—far surpassing the rest of the feathered race. It includes the ostrich, cassowary, the American *rhea*, and the emus of Australia. The ostrich stands from six to eight feet high, and weighs from 200 to 300 lbs. But we have—or rather had—only two species allied to them in genus *Otis*, the bustards. They all run with great speed, but few of them can fly. So I need not describe birds which cannot find their way to Britain unless in ships, or to St Andrews unless in caravans or shows.

Genus—OTIS. (*Linn.*)

The generic features are—bill, of medium size; legs, long and bare; three toes, all forward, short, and united at the base; wings of mean length—the third quill longest. The heavy form of the bustards and shape of the bill approximate them to the gallinaceous birds—the scrapers—while their long naked legs ally them to the grallatores or waders. They inhabit open countries and swampy ground, living amongst the grass. Their food is herbage, grain, reptiles, and insects. They run swiftly, and fly seldom.

THE GREAT BUSTARD.

Otis Tarda. (*Linn.*)

> "Care will the heavier sit
> When it perceives it is but faintly borne;
> While snarling sorrow hath less power to bite
> The man that mocks at it and sets it light."—*Shakespeare.*

This is the largest European bird—the male weighing thirty lbs.; female much less; at one time plentiful in England and the south of Scotland. But drainage and the plough has made it now a very rare British bird, its last resort in England being the fens of Lincolnshire, and in Scotland the low-lying tract in Morayshire between Elgin and the sea. It is common in the south and east of Europe, and abounds in the east plains and steppes of Tartary. The nest is merely a hollow amongst grass or corn; eggs, two, 3⅛ by 2⅛ inches—larger than a turkey's—yellowish-green, faintly blotched with purple. They pair in April. Some authors say they are polygamous, others when incubation begins, the males desert the females. They are laid in May. The hen sits a month. When pairing, the male struts and spreads his broad, round tail like a turkey cock. But on June 14th this year (1894) on the sand in the Step Lake, at my boat-breakwater, I saw a male pied wagtail ruffling his feathers, spreading his tail, proudly erecting his head, and strutting the same as an amorous bustard or pouter pigeon—not to speak of the "la-di-da" dandy of the drawing-room or the happy-go-lucky ploughman of the Lammas Market. Its general colour is pale chestnut on the upper part, beautifully varied with black; wing coverts, and under parts white; tail, short, broad, and rounded, tipped with white. A tuft or plume of long wiry feathers, about seven inches long, like moustaches, falls down the sides of the neck of the male. The flesh was held in high estimation, which, no doubt, helped its extirpation in Britain. Length of the male, about four feet; the female, thirty-five inches; iris, reddish-brown.

The Little Bustard.

Otis Tetrax. (*Linn.*)

> "Our *doubts* are traitors,
> And make us lose the good we oft might win
> By fearing to attempt."—*Measure for Measure.*
>
> "When our *actions* do not, our *fears* do make us traitors."—*Macbeth.*

This is one of our rarest British birds, never to my knowledge seen alive about St Andrews, so I need not dwell upon it. It is not half the size of the last, and much less difference between the size of male and female. Its habits are similar, and lays on the ground from three to five shining grass-green eggs, without spot or stain. It is common on the flat, arid plains of the south of Europe, and plentiful on the coasts of Barbary. Like the last, it both flies and runs with great speed. Its flesh is excellent, surpassing in flavour most of our gallinaceous game. It is 17½ inches long by 34½. Its general colour on the upper parts is buff-orange and black, richly barred and mottled, greater wing coverts, white, with two black bars; under parts, white; iris, yellow. Although there is nothing *great* and nothing *small* with God or Nature, I here finish my history of our "Land Birds" with the "great" and "little" bustard. If the little bustard could have written like little Pope, the poet, it might have said that greatness or littleness like

> "Honour and shame from no conditions rise;
> Act well your part—there all the honour lies."

For, as Longfellow says—

> "Art is long, and Time is fleeting,
> And our hearts, though stout and brave,
> Still, like muffled drums, are beating
> Funeral marches to the grave."

Yet Shakespeare, who seldom exaggerates, of Truth and Nature says—

> "Sleep is the *great restorer*, the *great physician.*"
>
> "*Great Nature's second course, chief nourisher in life's feast.*"

As I began this unassuming work with Humboldt, saying "the world was governed by universal *law*, not by a God," I finish with

Shakespeare, who sat not on the rigging of any Church or creed, but who in "Measure for Measure" makes the unjust deputy-judge, Angelo, condemn Claudio to death for a *natural* act, by saying to Isabella, "Your brother is a *forfeit* of the law." She truly answers—

> "Alas! alas!
> Why, all the souls that were were *forfeit* once;
> And He that might the *vantage* best have took
> Found out the *remedy*. How would you be
> If He *which* is the top of judgment should
> But judge you as you are? Oh, think on that,
> And *mercy* then will breathe within your lips,
> Like man new made."

Thus Shakespeare uses *which* for God in the same sense as it is used in the prayer—"Our Father which art in heaven"—as Humboldt uses the word *law* for God.

NOTE.—How aptly Claudio might have said, "God be merciful to me a sinner, for Christ's sake—who died for sinners." Still more aptly Christ Himself have replied, "He that is without sin cast the first stone," as written of the "woman of Samaria."

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